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Region 4

Science and Ecosystem Support Division
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Final Report
Yellow Bluff Airborne Particulate Study
Yellow Bluff, Wilcox County, Alabama
Dates of Study: July 30, 2012 – October 19, 2012

SESD Project Identification Number: 12-0562

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Table of Contents

DEFINITIONS.....	6
INTRODUCTION	7
BACKGROUND	7
SUMMARY	7
INVESTIGATION METHODOLOGY.....	8
Filter-Based Sampling Methodology	9
Dry Deposition Sampling Methodology	9
Sample Nomenclature	10
Meteorological Measurement Methodology	10
Analytical Methods.....	11
RESULTS	11
Filter-Based Sampling Results.....	11
Meteorological Results	13
Dry Deposition Results	16
QUALITY CONTROL.....	16
Filter-Based Sampling QC	16
Dry Deposition Sampling QC	18
CONCLUSION.....	18
APTMD CONCLUSION ADENDUM	20
APPENDICES	23
Appendix A - Maps of Study Area	24
Appendix B – Gravimetric Data	28
Appendix C – Meteorological Data	31
Appendix D – SESD ASB Laboratory Summary	36
Appendix E – Deposition Sample Container Photographs	55
Appendix F – SESD ASB Laboratory Reporting Sheets.....	61

DEFINITIONS

APTMD.....	Region 4 USEPA Air, Pesticides and Toxics Management Division, Atlanta, GA.
ASB.....	Analytical Support Branch, SESD, Athens, GA.
ATMB.....	Air Toxics and Monitoring Branch, Atlanta, GA.
lpm	liters per minute
mg	milligram
MRL	minimum reporting limit
NAAQS.....	national ambient air quality standards
PM _{2.5}	particles measuring less than or equal to 2.5 micrometers in diameter
PM ₁₀	particles measuring less than or equal to 10 micrometers in diameter
ppb	parts per billion
QAPP	quality assurance project plan
QC	quality control
SESD	Region 4 USEPA Science and Ecosystem Support Division, Athens, GA.
SOP	standard operating procedure
TSP	total suspended particulate
ug/m ³	microgram per cubic meter

Yellow Bluff Airborne Particulate Study
Yellow Bluff, Alabama
July 30, 2012 – October 19, 2012

INTRODUCTION

From July 30, 2012 through October 19, 2012, Mike Crowe and Greg Noah, Region 4, Science and Ecosystem Support Division (SESD) conducted an ambient air sampling study in Yellow Bluff, Alabama. This study was conducted in response to concerns about potential health impacts related to airborne particulate matter emanating from a nearby paper mill.

BACKGROUND

A potential environmental concern within the town of Yellow Bluff, Alabama was brought to EPA's attention during the summer of 2010. Glen McCord, the then Mayor of Yellow Bluff, and other public officials, indicated that there were concerns regarding air emissions from a nearby paper mill owned by International Paper. They believed the mill may be contributing to the corrosion of metal objects within the town and adversely affecting public health. A short term air monitoring study was conducted in January 2011(SESD Project #: 11-0068) to evaluate airborne pollutants that are commonly associated with paper mills. A public meeting was held in January 2012 to discuss the January 2011 study findings. During the meeting, some of the residents of Yellow Bluff had new concerns and stated that there were frequent occurrences of visible particulates falling from the sky in Yellow Bluff. The January 2011 study had collected samples to measure the PM_{2.5} size fraction of particulate matter, which is generally not visible. As a result of the information obtained during the public meeting, EPA Region 4's Air, Pesticides and Toxics Management Division (APTMD) requested SESD's assistance in conducting an additional airborne particulate study that would involve collecting and analyzing PM_{2.5} samples, as well as PM₁₀, total suspended particulate (TSP), and dry deposition samples, to determine what the residents were observing.

The town of Yellow Bluff is located in southern Alabama at approximately 31.96° north latitude and -87.48° west longitude in Wilcox County. Immediately to the north of Yellow Bluff, across Highway 10, is the International Paper Pine Hill Mill (IP) facility (formerly owned by Weyerhaeuser Co.) located at 7600 Highway 10 W, Pine Hill, Alabama 36769 (Figure 1). Figures 1 and 2 are located within Appendix A. Previous Station IDs from the January 2011study are also provided in Figure 1 for reference.

Although the origin of airborne particulate matter in the community may be from a wide range of sources (e.g., large facilities, small businesses, motor vehicles, and naturally occurring sources), the primary concern from the Yellow Bluff community has focused on potential emissions from the IP mill.

SUMMARY

The goal of this study was to determine if Yellow Bluff residents were being exposed to elevated levels of airborne particulates and to provide analytical data regarding the composition of these particles. To measure the concentrations of various sized particulates SESD conducted dry deposition sampling, as

well as filter sampling comprised of total TSP, PM₁₀, and PM_{2.5}. At the conclusion of the study a secondary analysis was performed on the filter samples, as well as on the dry deposition samples to identify water soluble reactive aerosol species in each type of sample.

Two sites were selected for the study; a Primary site and a Background site. The Primary site was located at the Yellow Bluff Town Hall, (81 Park Avenue), within the town of Yellow Bluff (Figure 1). The Background site was established approximately 15 miles to the northeast at cabin #6 within Roland Cooper State Park, (285 Deer Run Drive), in Camden, Alabama (Figure 2). A background site is used to determine if there is a difference in pollutant concentrations between a potentially impacted area (Yellow Bluff), and an area that is farther away from the potential source and assumed to be less impacted (Roland Cooper State Park). Both of these sites were also used during the January 2011 study.

The pollutants/parameters that were sampled for at the two sites were:

- PM_{2.5} concentrations
- PM₁₀ concentrations
- TSP concentrations
- Dry deposition
- Reactive, water soluble species in all samples:
 1. Chloride
 2. Sulfate
 3. Sodium
 4. Potassium
 5. Magnesium
 6. Calcium
- Meteorology - wind speed and direction (Primary site only)

Station IDs, along with station descriptions, addresses, and coordinates can be found in Table 1 below.

Table 1 – Station Descriptions

STATION ID	DESCRIPTION	ADDRESS	LAT.	LONG.
YBA	PRIMARY - Yellow Bluff Town Hall	81 Park Ave. Yellow Bluff, AL	N 31.96591°	W -87.46921°
YBB	BACKGROUND - Roland Cooper State Park	285 Deer Run Drive Cabin #6, Camden, AL	N 32.05273°	W -87.24842°

INVESTIGATION METHODOLOGY

All sampling and QC procedures for field activities were conducted in accordance with the EPA Region 4 SESD field branches quality systems and technical procedures and the SESD ambient air sampling SOP. Sample custody was maintained by SESD until samples were processed. Copies of the sampling methods are available in the QAPP.

Filter-Based Sampling Methodology

Filter-based sampling uses sampling equipment that draws in ambient air at a specific flow rate and passes the air thru a filter. Particulates in the air are captured on the filter for later analysis. Filter-based particulate sampling occurred during two separate events where three 24-hour samples per particulate size fraction were sampled for three consecutive days. The first event began on July 31, 2012, and ended on August 3, 2012. The second event began on October 16, 2012, and ended on October 19, 2012, for a total of six days of filter-based sampling.

Individual samples were collected for TSP, PM₁₀, and PM_{2.5} at both locations, on each of the six days, resulting in 18 valid samples being collected at the Background site and 18 valid samples being collected at the Primary site.

Filter-based particulate samples were collected using BGI, Inc. PQ200A samplers. The PQ200A samplers were deployed on tripods, with an inlet height of approximately two meters. The samplers were configured with different flow path arrangements to achieve the various particulate size fractions. PM_{2.5} samplers were configured with PM₁₀ size-selective inlet heads and an additional impactor-well that restricted the sampled particulate matter to PM_{2.5}. PM₁₀ samplers were configured with the size-selective PM₁₀ head, but did not have the size-limiting impactor. TSP samplers were configured with a TSP head that does not limit the size to PM₁₀, and no impactor. Sample air was drawn in thru an inlet at approximately 16.67 lpm, for approximately 24 hours. The sampled particulate matter was collected on pre-weighed 47mm Teflon filters. Additional QC samples were collected and are discussed in the QC section of this report. Filters were stored cold after sampling and transported in a cooler back to SESD.

Dry Deposition Sampling Methodology

The dry deposition samplers were deployed during the first filter-based event on July 31, 2012, and then collected on October 18, 2012, for a total of 79 days of dry deposition sampling. Two dry deposition samples were collected using N-CON Systems model MDN 00-125-4 series samplers. Dry deposition sampling was performed at the Primary and Background sites. The samplers passively collected material falling into 2.2 liter polypropylene containers. The dry deposition sampler is designed to detect rainfall in order to maintain the integrity of the dry sample. When rain is detected the sampler automatically shields the dry deposition bucket with a protective cover until after the rain has stopped, at which time the cover is automatically removed and sampling resumes. The sample containers were pre-cleaned and checked for contamination by the SESD Analytical Support Branch (ASB). At the end of the sampling event the sample containers were collected and photographs were taken of the interior of the containers. They were then capped and returned to SESD for analysis. Two additional QC samples were collected and are discussed in the QC section of this report.

Sample Nomenclature

The nomenclature for identifying filter samples is as follows:

<Station ID><analytical reference letter><sequential number (days 1 thru 6) of sample for that analysis at that station>

The letters for analytical reference are:

TSP = Total Suspended Particulate

10 = PM₁₀

25 = PM_{2.5}

The letter “C” within the sample identification indicates that the sample was a collocated filter sample used to measure method precision. FB and TB indicate filter blank and trip blank, respectively. These samples are discussed in the QC section of this report.

Examples:

YBB104 was the PM₁₀ sample collected on day four at station YBB (Background site).

YBATSPC3 was the collocated TSP sample collected on day three at station YBA (Yellow Bluff Town Hall).

YBB251 was the PM_{2.5} sample collected on day one at station YBB (Background site).

The nomenclature for identifying deposition samples is as follows:

MC1 = Primary site sample at station YBA

MC2 = Background site sample at YBB

MC3 = Field blank (QC)

MC4 = Trip blank (QC)

Meteorological Measurement Methodology

An RM Young Model 05305 Wind Monitor-AQ portable meteorological monitoring instrument was approximately three meters in height and was located on a tripod approximately ten meters from the edge of the structure, at the southern side of the Primary monitoring site. Wind direction orientation was verified after installation using a Silva type 15T compass. Wind speed and direction were continuously monitored and logged during the filter-based particulate sampling. These data were logged within an ESC 8832 data logger and are reported as one-hour averages within this report.

Analytical Methods

The SESD PM weighing laboratory conducted gravimetric analysis of particulate matter on the 47mm Teflon[®] filters in accordance with the *SESD SOP Ambient Air Sampling SESDPROC-303 (Section 2.5)*. The procedures in Section 2.5 are written specifically for the gravimetric analysis of PM_{2.5} filters, but the method is applicable for weighing 47mm TSP and PM₁₀ filters as well.

After the filters were weighed, the analyses identified in Table 2 were conducted by the SESD ASB laboratory. Because the reactive aerosols of interest are water soluble, a deionized (DI) water extraction was performed on the filters. Filters were individually added to approximately 50 mL of DI water and sonicated for five minutes. The extract was brought to a final volume of 100 mL and then split three ways for anions, metals, and ammonia analyses. The metals and ammonia portions were acidified to matrix match standards. The anions were analyzed at neutral pH to match standards.

The same ASB analysis was performed on the dry deposition samples. The containers were rinsed with deionized water and wiped out with a clean wipe. The wipe and rinse were then handled in the same manner as a filter sample.

Table 2 - Water-soluble reactive analytes

Analyte	EPA Method
Sulfate as SO ₄	Ion Chromatography (IC)
Chloride	EPA Method 300.0
Ammonia as N	IC EPA Method 350.1
Sodium	Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)
Potassium	
Calcium	
Magnesium	

RESULTS

Filter-Based Sampling Results

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (NAAQS) for wide-spread pollutants from numerous and diverse sources considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings. The 2012 24-hr NAAQS for PM_{2.5} (35 ug/m³) is designed to be compared to a 3-year, 98th percentile average of PM_{2.5} sampling concentrations. The 24-hr NAAQS for PM₁₀ (150 ug/m³) is defined as a concentration that is not to be exceeded more than once per year on average during a 24-hour period over 3-years. Both of these NAAQS are primary standards which indicates that they provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. The 1971 TSP primary 24-hr standard (260 ug/m³) was defined as a concentration that is "not to be exceeded more than once per year" (<http://www.epa.gov/air/criteria.html>). The rationale for comparing the maximum concentrations

detected to the NAAQS is provided in the Region 4 Air Toxics Risk Assessment Guidance as a suggested approach in screening air sampling data sets (http://www.epa.gov/region4/air/airtoxic/Screening_111610_KMEL.pdf). There were only very minor differences noted in the particulate concentrations between the primary and background sites (Table 3). The maximum measured 24-hour PM_{2.5} and PM₁₀ concentrations at the Primary and Background sites were below the NAAQS's. The maximum measured 24-hour TSP concentrations at the Primary and Background sites were both approximately 33 ug/m³, which is far below the historic standard. The maximum TSP values for both sites occurred on the same day and were nearly identical. The average sample concentration for all of the particulate sampling was approximately 13.9% higher at the Primary site than at the Background site, but none of the measured concentrations were an exceedance of the NAAQS's for any of the size fractions. A summary of the gravimetric data can be found in Appendix B. Data completeness was 100%.

Table 3 – Summary of particulate concentrations (micrograms/cubic meter)

	PRIMARY SITE			BACKGROUND SITE		
	Yellow Bluff Town Hall STATION ID: YBA			Roland Cooper Park STATION ID: YBB		
	PM2.5	PM10	TSP	PM2.5	PM10	TSP
Day 1	10.12	17.47	18.32	9.86	18.98	18.64
Day 2	20.34	31.18	33.05	20.18	29.33	33.03
Day 3	11.12	23.22	24.65	12.4	19.60	22.42
Day 4	12.28	16.39	27.31	7.28	12.15	16.02
Day 5	5.54	10.94	12.45	5.87	10.57	11.57
Day 6	4.79	17.31	20.31	4.70	9.32	10.98
Average particulate concentrations	10.70	19.42	22.68	10.05	16.66	18.78
Maximum particulate concentrations	20.34	31.18	33.05	20.18	29.33	33.03
24-hour NAAQS	35	150	260	35	150	260

The low particulate concentrations that were observed during the study resulted in there being very little material on the sample filters for subsequent chemical analysis. The maximum value results of the chemical analyses for reactive aerosols can be found in Table 4. Most of the analytes were not detected at or above their MRL's. Sulfate and ammonia were the only analytes detected above the MRL, and the higher values occurred at the Background site. The daily values for sulfate and ammonia can be found in Tables 4a and 4b, respectively, in Appendix D. The comprehensive analytical data can be found in the SESD ASB Laboratory Reporting Sheets in Appendix F.

Table 4 – Maximum values of water soluble reactive analytes (micrograms per filter)

PRIMARY SITE	BACKGROUND SITE	
	Yellow Bluff Town Hall	
	STATION ID: YBA	ROLAND COOPER PARK
ug/filter		ug/filter
Sulfate	80	120
Ammonia	14	21
Chloride	20 U	20 U
Potassium	200 U	200 U
Sodium	200 U	200 U
Calcium	50 U	50 U
Magnesium	50 U	50 U

U The analyte was not detected at or above the reporting limit.

Meteorological Results

Meteorological data (wind speed and direction) were collected for over 167 hours at the Primary site during the filter-based sampling. Most of the filter-based sampling occurred during calm conditions (wind speed of less than 1.0 meter per second). Calm conditions were recorded for approximately 112 hours. Approximately 39 hours recorded wind speeds averaging 1.5 m/s, mostly from the East or South. Figure 3 represents a wind rose that illustrates which direction the wind was blowing from, with Yellow Bluff Town Hall as the center of the wind rose, during the filter-based sampling. Figure 4 illustrates the distribution of wind speed during filter-based sampling. During the second 3-day event the instrumentation at the Primary site experienced loss of power for approximately 14 hours. For those 14 hours wind speed and wind direction were not recorded, but the filter-based sampling continued on battery back-up. Hourly averages for wind speed and direction were downloaded from the data logger at the Primary site and are included in Appendix C.

Figure 3 – Primary site wind rose

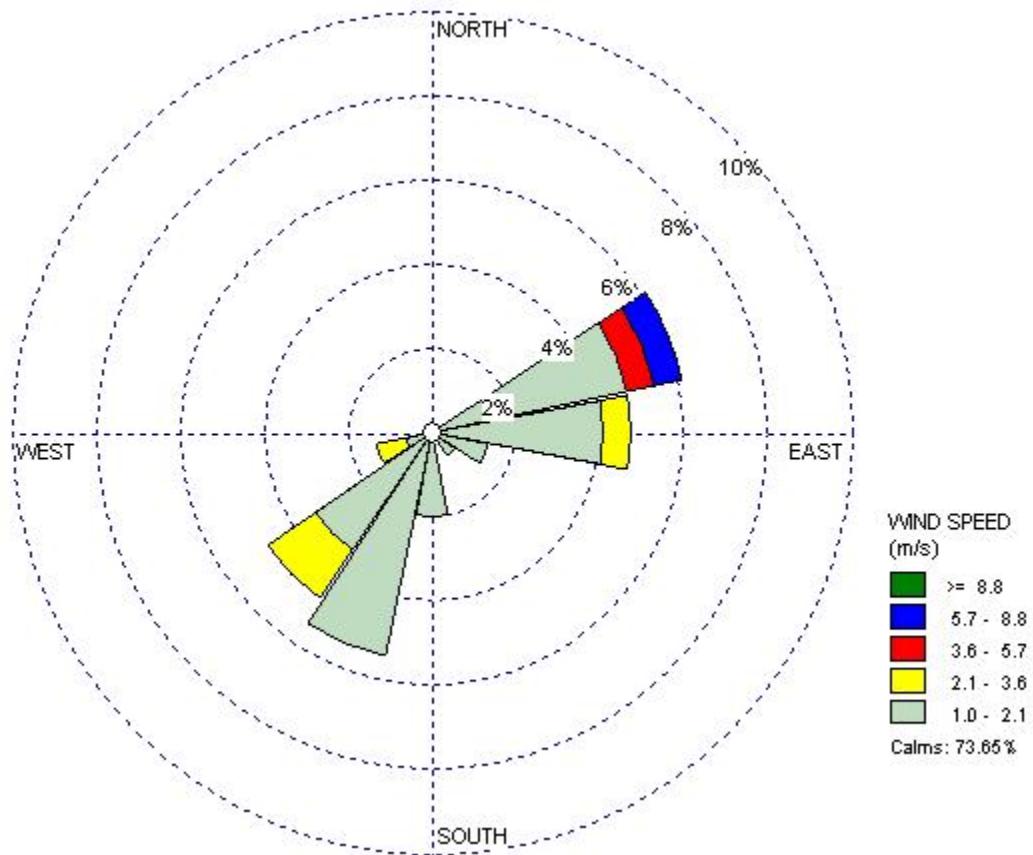
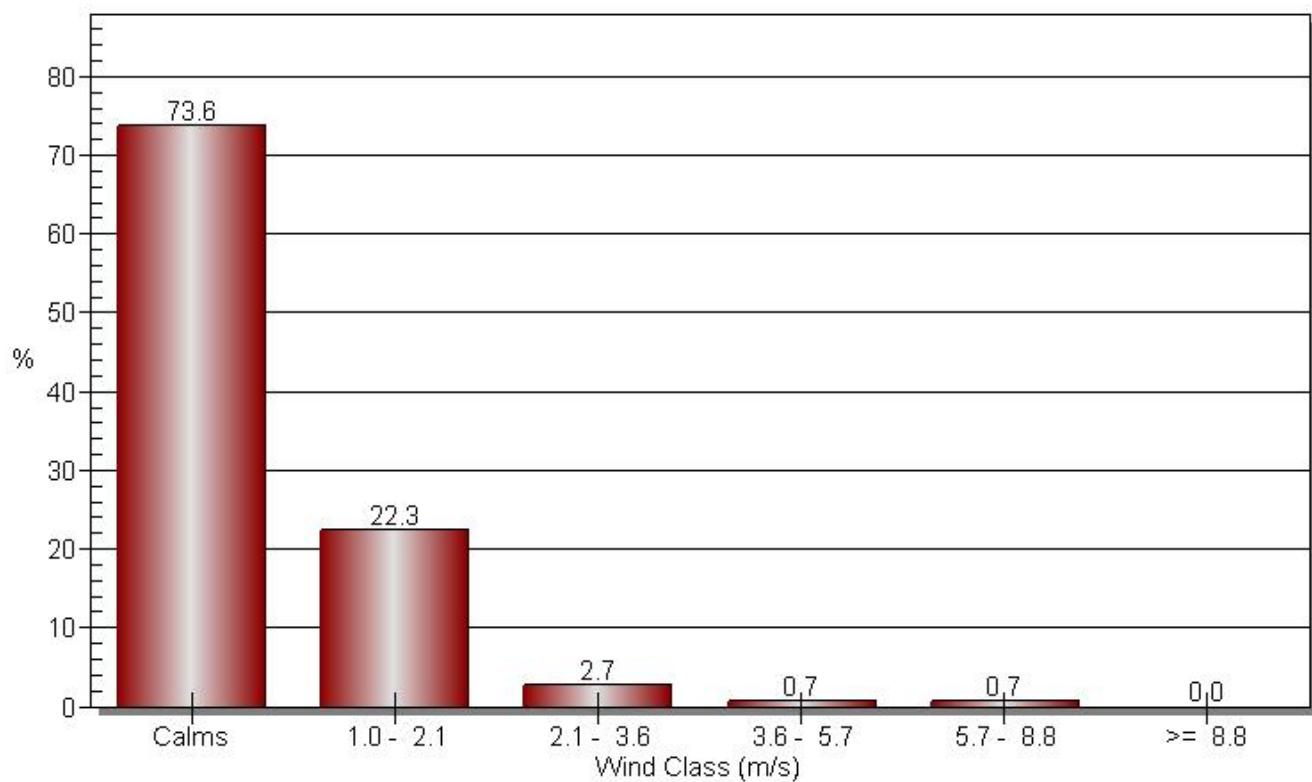


Figure 4 – Primary site wind class frequency distribution



Dry Deposition Results

Low concentrations of analytes were detected in the dry deposition samples. There was a measureable difference in the Primary site over the Background site for five of the analytes. Table 5 is a summary table that contains the analytical results for the seven analytes, for both of the deposition field samples. The SESD ASB Laboratory Summary, which contains dry deposition analytical data, can be found in Appendix D. The comprehensive data can be found in Appendix F. Visual inspection of the sample containers indicated what appeared to be a small amount of bird excrement in the Primary site sample container (MC1). There was what appeared to be a pine needle and other vegetative material in the Background site sample container (MC2). Data completeness was 100%, but the usability of the data is questionable. The results were provided in units of “ug/container”. Although short-term exposure standards are available in most cases, human health protective comparisons are not possible. Photographs of the interior of the sample containers can be found in Appendix E.

Table 5 – Dry deposition results (micrograms per container)

PRIMARY SITE		BACKGROUND SITE
Yellow Bluff Town Hall		Roland Cooper Park
STATION ID: YBA		STATION ID: YBB
	Sample ID: MC1	Sample ID: MC2
Sulfate	570	300
Ammonia	10 U,J,O	99 J,O
Chloride	210	68
Potassium	730	200 U
Sodium	200 U	200 U
Calcium	370	130
Magnesium	78	50 U

Many of the analytical results are followed by “Data Qualifiers” which are summarized in Appendix F and below:

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- O Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the Appendix D report.

QUALITY CONTROL

Filter-Based Sampling QC

Flow rate, temperature, and atmospheric pressure were verified for each sampler at the beginning of each 24-hour sampling period using BGI delta cal instrumentation. Field blanks and trip blanks were collected to monitor for possible cross contamination and the effects of field conditions on sample media. The field blanks were filter cassettes that were placed in a sampler briefly, but no sample stream passed thru the filter. The trip blank was a filter cassette that accompanied the scientists to the field, but remained unexposed. Duplicate (collocated) samples were collected to measure precision. A duplicate

sample was collected each day at the Primary site for one of the three particulate size fractions using a collocated sampler placed between one and two meters from the primary sampler. The agreement for the gravimetric data between the primary and duplicate samples was very good and averaged an approximately 10% absolute difference. The percent difference for day 4 TSP was greater than 15% (the target criteria specified in the QAPP) due to some visible water droplets that had impacted the collocated filter (this was noted on the field data sheet). The agreement for the chemical analysis was marginal, possibly due to the fact that there was so little material on the filters and the results were very close to the MRL. The small amount of material on the filters also makes the calculation of percent difference unnecessary, as there were no appreciable amounts of the analytes of interest detected. Gravimetric field blank and trip blank results were within the acceptable limits of +/- 30ug and +/- 15ug, respectively. Blank results for chemical analysis were all below the MDL. See Table 6a for collocated gravimetric filter QC data, table 6b for collocated chemical filter QC data for analytes detected above the MDL, and Table 7 for gravimetric field blank and trip blank data.

Table 6a – Collocated filter gravimetric QC data

		TSP	PM10	PM2.5	Nominal Difference	Percent Difference
Sample ID	Description	ug/m3	ug/m3	ug/m3	ug/m3	%D
YBA251	Day 1			10.12	0.86	8.50
YBA25C1	Day 1 Collocated			10.98		
YBA102	Day 2		31.18		0.41	1.31
YBA10C2	Day 2 Collocated		31.59			
YBATSP3	Day 3	24.65			0.48	1.95
YBATSP3C	Day 3 Collocated	25.13				
YBATSP4	Day 4	27.31			6.38 *	-23.36 *
YBATSC4	Day 4 Collocated	20.93				
YBA105	Day 5		10.94		1.37	12.52
YBA10C5	Day 5 Collocated		12.31			
YBA256	Day 6			4.79	0.66	13.78
YBA25C6	Day 6 Collocated			5.45		

* Field data sheet notes water droplets on the collocated filter.

Table 6b – Collocated filter chemical QC data

		PRIMARY SAMPLE		COLLOCATED SAMPLE	Nominal Difference	Percent Difference
Analyte	Sample ID	ug/filter	Sample ID	ug/filter	ug/filter	%D
Sulfate	YBA101	49	YBA10C1	78	29	59
Ammonia	YBA101	10u	YBA10C1	13	~3	~30
Sulfate	YBA251	47	YBA25C1	44	3	6.4
Sulfate	YBATSP3	71	YBATSP3C	69	2	2.8

Table 7 – Field blank and trip blank QC data

Sample ID	Description	Filter ID	Mass Change (mg)
YBA251FB	Day 1 field blank	T2635517	0.008
YBA102FB	Day 2 field blank	T2635486	0.003
YBATSP3FB	Day 3 field blank	T2635496	-0.002
YBATSP4FB	Day 4 field blank	T2636126	0.005
YBA105FB	Day 5 field blank	T2636136	0.009
YBA256FB	Day 6 field blank	T2636150	0.006
YBBTB1	Trip Blank	T2635488	-0.007
Acceptable criteria for field blank: +/- 0.030 mg			
Acceptable criteria for trip blank: +/- 0.015 mg			

Dry Deposition Sampling QC

The sample containers were analyzed by ASB prior to the study to ensure container cleanliness. A trip blank was transported with the sample containers to the field but never opened. A field blank was transported to the field and placed in the sampler at the Primary site for approximately ten seconds. The results for the trip blank and field blank for the dry deposition samples indicated that all analytes were below the MRL. Only two of the samplers exist in SESD's equipment inventory, therefore no duplicate samplers were deployed to measure precision. The functionality of both sampler rain shields was successfully tested several times during the filter-based sampling. No visible rain water was ever observed within the containers. Wire devices around the edge of the sample containers and predatory bird decoys were deployed to attempt to prevent birds from landing on the samplers. Despite the steps taken to discourage the possible impact of birds, there appeared to be bird excrement inside the Primary site sample container. Vegetative material, possibly from nearby trees, was also observed inside of the Background site sample container. These impacts make it very difficult to differentiate between the ambient air and foreign material contributions to the sample. As there were no collocated depositional samplers, it is not possible to assess method precision, and it is not possible to determine whether the analytical results are attributable to the dry deposition of atmospheric particles or to the visible foreign materials.

CONCLUSION

The overall goal of this air monitoring effort was to collect data to determine if Yellow Bluff residents were being exposed to elevated levels of airborne particulate pollutants. Filter based air samples were collected for TSP, PM₁₀, and PM_{2.5} at the Yellow Bluff Town Hall and at a background location in the Roland Cooper State Park, in Camden, for a total of six days in 2012. Predominantly calm wind conditions were observed during the six days. While the short duration and limited sample size of this study limits the ability to conduct a detailed statistical analysis of the data, there are some general observations that can be made about the results of the filter data. The average concentration of airborne particulates was only slightly higher at the Primary site in Yellow Bluff compared to the Background site at the state park. None of the particulate samples indicated an exceedance of the NAAQS for PM_{2.5} or PM₁₀. The results for TSP were well below the historic NAAQS for TSP. The subsequent chemical

analyses performed on the filters showed no appreciable amounts of chemical analytes, resulting in below MRL reports for most of the samples. Additional composite dry deposition samples were collected for approximately 79 days. No conclusions can be made from the dry deposition samples due to foreign material entering the sample containers during sampling.

APTMD CONCLUSION ADENDUM

United States Environmental Protection Agency Yellow Bluff Air Quality Study

Yellow Bluff, Wilcox County, Alabama

Yellow Bluff Airborne Particle Study Summary Sheet Phase 2 Sampling Results July 10, 2013

Solomon Pollard, Ph.D. Senior Toxicologist

Background

At the request of Yellow Bluff citizens, a second sampling study was implemented to assess resident exposure to airborne particulates in the area and to provide analytical data regarding the composition of the particulates. EPA conducted air monitoring at two locations including the Yellow Bluff Town Hall and the Roland Cooper State Park (background site). The time tables for the study included July-August of 2012 and October 2012 at the two locations.

Study Design

On each of the two sampling occasion, Filter-based samples were collected (i.e., PM₁₀, PM_{2.5}, and Total Suspended Particulates [TSP]) daily over a 3-day period (i.e., 3-samples/location/sampling episode). Subsequent lab analyses of these filter-based samples included Water Soluble Reactive Analyte analysis. Dry Deposition sampling was also conducted whereby a collector was placed at each location and left in place for 79 days (i.e., 2 samples over the entire study). Meteorological data were also collected including wind direction and speed and ambient temperature.

Results

Table 1 demonstrates that none of the Filter-based Particulate sample results exceeded their respective screening levels.

Table 1. Filter-based Particulate Sampling Results

	Primary Location			Background Location		
	PM _{2.5}	PM ₁₀	TSP	PM _{2.5}	PM ₁₀	TSP
Average Particulate Conc. ug/m ³	10.7	19.4	22.7	10.1	16.7	18.8
Maximum Particulate Conc. ug/m ³	20.3	31.2	33.1	20.2	29.3	33.0
Health-based Comparison Level	35	150	260	35	150	260

There are generally no health screening concentrations for Particulate/TSP sampling results. With the Hurricane Katrina demolition and debris burning screening effort, PM₁₀ = 150 ug/m³ (24-hr Std) and PM_{2.5} = 35 ug/m³ (24-

hr Std) were used. The TSP standard (260 ug/m³ [24-hr Std]) was used although it was vacated in 1987 (http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_history.htm).

Table 2 shows that none of the detected Water Soluble Reactive Analytes were at levels above their respective screening levels.

Table 2. Maximum Water Soluble Reactive Analyte Results

	Primary Location (ug/m ³)	Background Location (ug/m ³)	Screening Level (ug/m ³)	Source
Sulfate	3.3	5.0	100	ATSDR Acute MRL
Ammonia	0.6	0.9	1000	ATSDR Acute MRL
Chloride	0.8U	0.8U		
Potassium	8.3U	8.3U		
Sodium	8.3U	8.3U		
Calcium	2.1U	2.1U		
Magnesium	2.1U	2.1U		

U-denotes not detected at or above the detection limit. All micrograms per filter results (reported in the SESD Final Report: 12-0562) were converted to ug/m³ by dividing by 24 (factor associated with the area of the filter). The converted results are provided herein. The Agency for Toxic Substances and Disease Registry (ATSDR) acute Minimum Risk Level (MRL) is protective of exposures ranging from 1-14 days.

The Dry Deposition results were provided in units of micrograms per container and could not be converted to ug/m³. However, the process of conversion would involve a division step such that all of the values provided in Table 5 of the report would be lower. The appropriate screening levels are provided below in Table 3 for consideration. Also note that the Dry Deposition sampling data lack accuracy due to vegetative materials being found in the Background Location sample and bird excrement in the Primary Location sample.

Table 3. Dry Deposition Analytical Results

	Primary Location (ug/container)	Background Location (ug/container)	Screening Level (ug/m ³)	Source
Sulfate	570	300	100	ATSDR Acute MRL
Ammonia	10U	99J	1,000	ATSDR Acute MRL
Chloride	210	68	200	ATSDR Acute MRL
Potassium	730	200U	2,000	OSHA PEL
Sodium	200U	200U	2,000	OSHA PEL
Calcium	370	130	5,000	OSHA PEL
Magnesium	78	50U	5,000	OSHA PEL

U-denotes not detected at or above the detection limit. J denotes that the concentration is an estimate. The Agency for Toxic Substances and Disease Registry (ATSDR) acute Minimum Risk Level (MRL) is protective of exposure ranging from 1-14 days. Chlorine is used as a surrogate for Chloride. The Occupational Safety and Health Administration (OSHA) concentrations are Permissible Exposure Limits (PEL) for an 8-hour work day. The screening levels employed surrogates including Potassium Hydroxide used for Potassium, Sodium hydroxide used for Sodium, respirable Calcium Hydroxide used for Calcium, and respirable Magnesite used for Magnesium.

Although not a straight forward comparison, generally the sampling levels provided in Table 3 were similar to the screening levels only in the cases of Sulfate and Chloride.

Overall Conclusions

The Filter and Dry Deposition sampling results did not identify levels that would represent a public health concern. Further, the particle-based sampling levels associated with the Town Hall location were only mildly elevated compared to that of the background samples.

APPENDICES

Appendix A - Maps of Study Area

Figure 1 –Yellow Bluff Area station locations.



Figure 2 –Yellow Bluff and Background site



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Appendix B – Gravimetric Data

Sample ID	Filter ID	Cassette ID	Start Day	Sampler Serial #	Net Weight (mg)	Concentration (ug/m3)	Field Blank Change (mg)	Trip Blank Change (mg)
YBA101	T2635518	4206	07/31/2012	BGI0592	0.420	17.47		
YBA102	T2635510	2653	08/01/2012	BGI0592	0.749	31.18		
YBA10C2	T2635502	4671	08/01/2012	BGI0594	0.759	31.59		
YBA102FB	T2635486	1092	08/01/2012	BGI0592			0.003	
YBA103	T2635498	4762	08/02/2012	BGI0592	0.558	23.22		
YBA104	T2636142	8413	10/16/2012	BGI0592	0.394	16.39		
YBA105	T2636139	5129	10/17/2012	BGI0592	0.263	10.94		
YBA10C5	T2636131	10924	10/17/2012	BGI0594	0.296	12.31		
YBA105FB	T2636136	10424	10/17/2012	BGI0592			0.009	
YBA106	T2636132	1809	10/18/2012	BGI0592	0.416	17.31		
YBA251	T2635519	9449	07/31/2012	BGI0595	0.243	10.12		
YBA25C1	T2635513	5049	07/31/2012	BGI0594	0.264	10.98		
YBA251FB	T2635517	9654	07/31/2012	BGI0595			0.008	
YBA252	T2635504	2595	08/01/2012	BGI0595	0.488	20.34		
YBA253	T2635503	1398	08/02/2012	BGI0595	0.267	11.12		
YBA254	T2636124	2324	10/16/2012	BGI0595	0.295	12.28		
YBA255	T2636125	8913	10/17/2012	BGI0595	0.133	5.54		
YBA256	T2636145	4886	10/18/2012	BGI0595	0.115	4.79		
YBA256C	T2636137	8377	10/18/2012	BGI0594	0.131	5.45		
YBA256FB	T2636150	8571	10/18/2012	BGI0595			0.006	
YBATSC4	T2636127	2186	10/16/2012	BGI0594	0.503	20.93		
YBATSP1	T2635516	9187	07/31/2012	BGI0588	0.440	18.32		
YBATSP2	T2635511	2426	08/01/2012	BGI0588	0.794	33.05		
YBATSP3	T2635493	1047	08/02/2012	BGI0588	0.592	24.65		
YBATSP3C	T2635492	4228	08/02/2012	BGI0594	0.604	25.13		
YBATSP3FB	T2635496	2415	08/02/2012	BGI0588			-0.002	
YBATSP4	T2636123	10275	10/16/2012	BGI0588	0.656	27.31		
YBATSP4FB	T2636126		10/16/2012	BGI0588			0.005	
YBATSP5	T2636149	5050	10/17/2012	BGI0588	0.299	12.45		
YBATSP6	T2636129	10219	10/18/2012	BGI0588	0.488	20.31		
YBB101	T2635509	8764	07/31/2012	BGI0590	0.456	18.98		
YBB102	T2635508	1207	08/01/2012	BGI0590	0.705	29.33		
YBB103	T2635500	10026	08/02/2012	BGI0590	0.471	19.60		
YBB104	T2636130	2095	10/16/2012	BGI0590	0.292	12.15		
YBB105	T2636140	4262	10/17/2012	BGI0590	0.254	10.57		
YBB106	T2635948	2539	10/18/2012	BGI0590	0.224	9.32		
YBB251	T2635514	1810	07/31/2012	BGI0587	0.237	9.86		
YBB252	T2635501	1581	08/01/2012	BGI0587	0.485	20.18		
YBB253	T2635499	8833	08/02/2012	BGI0587	0.298	12.40		
YBB254	T2636128	8468	10/16/2012	BGI0587	0.175	7.28		

YBB255	T2636138	5301	10/17/2012	BGI0587	0.141	5.87		
YBB256	T2636148	10322	10/18/2012	BGI0587	0.113	4.70		
YBBTB1	T2635488	1558	08/02/2012	BGI0590				-0.007
YBBTSP1	T2635512	2153	07/31/2012	BGI0597	0.448	18.64		
YBBTSP2	T2635507	2313	08/01/2012	BGI0597	0.794	33.03		
YBBTSP3	T2635485	1412	08/02/2012	BGI0597	0.539	22.42		
YBBTSP4	T2636134	5323	10/16/2012	BGI0597	0.385	16.02		
YBBTSP5	T2636133	2368	10/17/2012	BGI0597	0.278	11.57		
YBBTSP6	T2636141	9847	10/18/2012	BGI0597	0.264	10.98		

Appendix C – Meteorological Data

Date	Time	Average WD	Average WS m/s
7/30/2012	17:00	131P	0P
7/30/2012	18:00	185	0
7/30/2012	19:00	175	0
7/30/2012	20:00	198	0
7/30/2012	21:00	198	1
7/30/2012	22:00	187	1
7/30/2012	23:00	173	1
7/31/2012	0:00	207	0
7/31/2012	1:00	196	0
7/31/2012	2:00	208	0
7/31/2012	3:00	211	0
7/31/2012	4:00	75	0
7/31/2012	5:00	78	0
7/31/2012	6:00	80	3
7/31/2012	7:00	102	2
7/31/2012	8:00	77	1
7/31/2012	9:00	77	6
7/31/2012	10:00	73	4
7/31/2012	11:00	83	1
7/31/2012	12:00	135	0
7/31/2012	13:00	213	1
7/31/2012	14:00	208	1
7/31/2012	15:00	210	1
7/31/2012	16:00	208	0
7/31/2012	17:00	219	0
7/31/2012	18:00	237	0
7/31/2012	19:00	194	0
7/31/2012	20:00	158	0
7/31/2012	21:00	107	0
7/31/2012	22:00	113	0
7/31/2012	23:00	114	0
8/1/2012	0:00	126	0
8/1/2012	1:00	98	0
8/1/2012	2:00	84	0
8/1/2012	3:00	72	0
8/1/2012	4:00	192	0
8/1/2012	5:00	107	0
8/1/2012	6:00	74	0
8/1/2012	7:00	84	0
8/1/2012	8:00	226	0
8/1/2012	9:00	78	0

8/1/2012	10:00	68	1
8/1/2012	11:00	70	1
8/1/2012	12:00	64	1
8/1/2012	13:00	73	0
8/1/2012	14:00	93	1
8/1/2012	15:00	108	1
8/1/2012	16:00	92	1
8/1/2012	17:00	84	1
8/1/2012	18:00	90	1
8/1/2012	19:00	0	0
8/1/2012	20:00	0	0
8/1/2012	21:00	110	0
8/1/2012	22:00	171	0
8/1/2012	23:00	163	0
8/2/2012	0:00	210	0
8/2/2012	1:00	82	0
8/2/2012	2:00	114	0
8/2/2012	3:00	115	0
8/2/2012	4:00	267	0
8/2/2012	5:00	99	0
8/2/2012	6:00	67	0
8/2/2012	7:00	185	0
8/2/2012	8:00	210	0
8/2/2012	9:00	206	0
8/2/2012	10:00	190	0
8/2/2012	11:00	256	0
8/2/2012	12:00	243	0
8/2/2012	13:00	156	0
8/2/2012	14:00	85	1
8/2/2012	15:00	89	0
8/2/2012	16:00	84	0
8/2/2012	17:00	219	1
8/2/2012	18:00	177	0
8/2/2012	19:00	116	0
8/2/2012	20:00	178	0
8/2/2012	21:00	98	0
8/2/2012	22:00	89	0
8/2/2012	23:00	93	0
8/3/2012	0:00	213	0
8/3/2012	1:00	121	0
8/3/2012	2:00	159	0
8/3/2012	3:00	104	0

8/3/2012	4:00	93	0
8/3/2012	5:00	114	0
8/3/2012	6:00	159	0
8/3/2012	7:00	168	0
8/3/2012	8:00	151	0
8/3/2012	9:00	211	0
8/3/2012	10:00	195	0
8/3/2012	11:00	212	0
8/3/2012	12:00	219	0
8/3/2012	13:00	225	0
8/3/2012	14:00	210P	1P
10/16/2012	13:00	P	P
10/16/2012	14:00	69	1
10/16/2012	15:00	65	1
10/16/2012	16:00	69	1
10/16/2012	17:00	235	0
10/16/2012	18:00	153	0
10/16/2012	19:00	0	0
10/16/2012	20:00	215	0
10/16/2012	21:00	221	0
10/16/2012	22:00	239	0
10/16/2012	23:00	74P	0P
10/17/2012	0:00	P	P
10/17/2012	1:00	P	P
10/17/2012	2:00	P	P
10/17/2012	3:00	P	P
10/17/2012	4:00	P	P
10/17/2012	5:00	P	P
10/17/2012	6:00	P	P
10/17/2012	7:00	P	P
10/17/2012	8:00	P	P
10/17/2012	9:00	P	P
10/17/2012	10:00	P	P
10/17/2012	11:00	142	1
10/17/2012	12:00	188	1
10/17/2012	13:00	222	2
10/17/2012	14:00	231	3
10/17/2012	15:00	201	2
10/17/2012	16:00	223	3
10/17/2012	17:00	224	2
10/17/2012	18:00	220	0
10/17/2012	19:00	141	0

10/17/2012	20:00	107	0
10/17/2012	21:00	109	0
10/17/2012	22:00	198	0
10/17/2012	23:00	208	1
10/18/2012	0:00	221	1
10/18/2012	1:00	204	0
10/18/2012	2:00	192	1
10/18/2012	3:00	196	1
10/18/2012	4:00	146	0
10/18/2012	5:00	125	0
10/18/2012	6:00	202	0
10/18/2012	7:00	221	0
10/18/2012	8:00	101	0
10/18/2012	9:00	229P	0P
10/18/2012	10:00	P	P
10/18/2012	11:00	P	P
10/18/2012	12:00	323	0
10/18/2012	13:00	315	0
10/18/2012	14:00	332	0
10/18/2012	15:00	309	0
10/18/2012	16:00	303	0
10/18/2012	17:00	332	0
10/18/2012	18:00	273	0
10/18/2012	19:00	0	0
10/18/2012	20:00	133	0
10/18/2012	21:00	0	0
10/18/2012	22:00	0	0
10/18/2012	23:00	0	0
10/19/2012	0:00	0	0
10/19/2012	1:00	0	0
10/19/2012	2:00	158	0
10/19/2012	3:00	37	0
10/19/2012	4:00	175	0
10/19/2012	5:00	0	0
10/19/2012	6:00	110	0
10/19/2012	7:00	0	0
10/19/2012	8:00	0	0
10/19/2012	9:00	143	0
10/19/2012	10:00	226	1
10/19/2012	11:00	238	2
10/19/2012	12:00	242	3
10/19/2012	13:00	244D	4D

P flag = power failure

Appendix D – SESD ASB Laboratory Summary

Table – 4a Sulfate per filter summary

	PRIMARY SITE				BACKGROUND SITE			
	Yellow Bluff Town Hall				Roland Cooper Park			
	STATION ID: YBA				STATION ID: YBB			
	PM2.5	PM10	TSP		PM2.5	PM10	TSP	
Day 1	47	49	49		48	48	49	
Day 2	77	78	80		110	110	120	
Day 3	63	70	71		65	64	70	
Day 4	27	34	56		26	28	29	
Day 5	24	26	29		24	28	29	
Day 6	20 U *	37	24		24	25	29	
Average sulfate (ug/filter)	43	49	52		50	51	54	
Maximum sulfate (ug/filter)	77	78	80		110	110	120	

U The analyte was not detected at or above the reporting limit

* Value of 20 ug used when calculating the average

Table 4b – Ammonia per filter summary

	PRIMARY SITE				BACKGROUND SITE			
	Yellow Bluff Town Hall				Roland Cooper Park			
	STATION ID: YBA				STATION ID: YBB			
	PM2.5	PM10	TSP		PM2.5	PM10	TSP	
Day 1	10 U	10 U	10 U		10 U	10 U	10 U	
Day 2	14	11	11		21	18	20	
Day 3	10 U	10 U	10 U		10 U	10 U	10 U	
Day 4	10 U,J,O	10 U,J,O	10 U,J,O		10 U,J,O	10 U,J,O	10 U,J,O	
Day 5	10 U,J,O	10 U,J,O	10 U,J,O		10 U,J,O	10 U,J,O	10 U,J,O	
Day 6	10 U,J,O	10 U,J,O	10 U,J,O		10 U,J,O	10 U,J,O	10 U,J,O	
Maximum ammonia (ug/filter)	14	11	11		21	18	20	

U The analyte was not detected at or above the reporting limit

J The identification of the analyte is acceptable; the reported value is an estimate

O Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files

Lab Results Data List

Study: 12-0562 - Yellow Bluff Dust Study

Sample Date Range: 07/30/2012 - 01/04/2013

SELECTED FLAG: All (Detect(s) + Non-Detect(s))

FILTER DATA

Lab ID	Sample ID	Matrix	Station ID	Sample Date	Method	Analyte	Results	Qualifiers	Units	MRL
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-01	YBA102FB	Field Blank Air	-	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-02	YBA251FB	Field Blank Air	-	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-03	YBATSP3FB	Field Blank Air	-	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10

E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-04	YBBTB1	Blank Filter	-	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-05	YBA101	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	49		ug/Filter	20
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	78		ug/Filter	20
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-06	YBA102	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	11		ug/Filter	10
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	70		ug/Filter	20
E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20

E123207-07	YBA103	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	78		ug/Filter	20
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-08	YBA10C1	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	13		ug/Filter	10
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	47		ug/Filter	20
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-09	YBA251	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	77		ug/Filter	20
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-10	YBA252	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	14		ug/Filter	10
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	63		ug/Filter	20

E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-11	YBA253	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	44		ug/Filter	20
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-12	YBA25C1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	49		ug/Filter	20
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-13	YBATSP1	Ambient Air	YBA	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	80		ug/Filter	20
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	11		ug/Filter	10
E123207-14	YBATSP2	Ambient Air	YBA	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20

E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	71		ug/Filter	20
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-15	YBATSP3	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	69		ug/Filter	20
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-16	YBATSP3C	Ambient Air	YBA	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-17	YBB101	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	48		ug/Filter	20
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	110		ug/Filter	20
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-18	YBB102	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	18		ug/Filter	10
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200

E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	64		ug/Filter	20
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-19	YBB103	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	48		ug/Filter	20
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-20	YBB251	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	21		ug/Filter	10
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	110		ug/Filter	20
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-21	YBB252	Ambient Air	YBB	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	65		ug/Filter	20
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-22	YBB253	Ambient Air	YBB	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20

E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Classical/Nutrient Analyses	Sulfate as SO4	49		ug/Filter	20
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-23	YBBTSP1	Ambient Air	YBB	8/1/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Sulfate as SO4	120		ug/Filter	20
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-24	YBBTSP2	Ambient Air	YBB	8/2/2012	Classical/Nutrient Analyses	Ammonia as N	20		ug/Filter	10
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Sulfate as SO4	70		ug/Filter	20
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Total Metals	Calcium	50	U	ug/Filter	50
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Total Metals	Potassium	200	U	ug/Filter	200
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Total Metals	Sodium	200	U	ug/Filter	200
E123207-25	YBBTSP3	Ambient Air	YBB	8/3/2012	Classical/Nutrient Analyses	Ammonia as N	10	U	ug/Filter	10
E124405-03	YBA105FB	Air	YBA	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-03	YBA105FB	Air	YBA	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-03	YBA105FB	Air	YBA	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E124405-03	YBA105FB	Air	YBA	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-03	YBA105FB	Air	YBA	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-03	YBA105FB	Air	YBA	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-03	YBA105FB	Air	YBA	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200

E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-04	YBA256FB	Field Blank Air	YBA	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-05	YBATSP4FB	Field Blank Air	YBA	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	34		ug/Filter	20
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-07	YBA104	Ambient Air	YBA	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-08	YBA105	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	26		ug/Filter	20

E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	37		ug/Filter	20
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-09	YBA106	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	28		ug/Filter	20
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-10	YBA10C5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	27		ug/Filter	20
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-11	YBA254	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	24		ug/Filter	20
E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20

E124405-12	YBA255	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-13	YBA256	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Filter	20
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-14	YBA25C6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	36		ug/Filter	20
E124405-15	YBATSC4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	56		ug/Filter	20
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20

E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-16	YBATSP4	Ambient Air	YBA	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	29		ug/Filter	20
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-17	YBATSP5	Ambient Air	YBA	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	24		ug/Filter	20
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-18	YBATSP6	Ambient Air	YBA	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	28		ug/Filter	20
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-20	YBB104	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50

E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	28		ug/Filter	20
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-21	YBB105	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	25		ug/Filter	20
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-22	YBB106	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	26		ug/Filter	20
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-23	YBB254	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-24	YBB255	Ambient Air	YBB	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-24	YBB255	Ambient Air	YBB	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-24	YBB255	Ambient Air	YBB	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-24	YBB255	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-24	YBB255	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	24		ug/Filter	20
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	24		ug/Filter	20
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50

E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-25	YBB256	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Sulfate as SO4	29		ug/Filter	20
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-26	YBBTSP4	Ambient Air	YBB	10/16/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Sulfate as SO4	29		ug/Filter	20
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-27	YBBTSP5	Ambient Air	YBB	10/17/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Filter	20
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	29		ug/Filter	20
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Total Metals	Calcium	50	U	ug/Filter	50
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Total Metals	Sodium	200	U	ug/Filter	200
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Total Metals	Potassium	200	U	ug/Filter	200
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Total Metals	Magnesium	50	U	ug/Filter	50
E124405-28	YBBTSP6	Ambient Air	YBB	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Filter	10

Lab Results Data List

Study: 12-0562 - Yellow Bluff Dust Study

Sample Date Range: 07/30/2012 - 01/04/2013

SELECTED FLAG: All (Detect(s) + Non-Detect(s))

DRY DEPOSITION DATA

Lab ID	Sample ID	Matrix	Station ID	Sample Date	Method	Analyte	Results	Qualifiers	Units	MRL
E122803-01	MC1	Bottle Blank	-	7/9/2012	Total Metals	Magnesium	50	U	ug/Bottle	50
E122803-01	MC1	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Bottle	20
E122803-01	MC1	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Bottle	20
E122803-01	MC1	Bottle Blank	-	7/9/2012	Total Metals	Calcium	50	U	ug/Bottle	50
E122803-01	MC1	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Ammonia as N	0.01	U	mg/Bottle	0.01
E122803-01	MC1	Bottle Blank	-	7/9/2012	Total Metals	Potassium	200	U	ug/Bottle	200
E122803-01	MC1	Bottle Blank	-	7/9/2012	Total Metals	Sodium	200	U	ug/Bottle	200
E122803-02	MC2	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Bottle	20
E122803-02	MC2	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Bottle	20
E122803-02	MC2	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Ammonia as N	0.01	U	mg/Bottle	0.01
E122803-02	MC2	Bottle Blank	-	7/9/2012	Total Metals	Calcium	50	U	ug/Bottle	50
E122803-02	MC2	Bottle Blank	-	7/9/2012	Total Metals	Magnesium	50	U	ug/Bottle	50
E122803-02	MC2	Bottle Blank	-	7/9/2012	Total Metals	Potassium	200	U	ug/Bottle	200
E122803-02	MC2	Bottle Blank	-	7/9/2012	Total Metals	Sodium	200	U	ug/Bottle	200
E122803-03	MC3	Bottle Blank	-	7/9/2012	Total Metals	Sodium	200	U	ug/Bottle	200
E122803-03	MC3	Bottle Blank	-	7/9/2012	Total Metals	Potassium	200	U	ug/Bottle	200
E122803-03	MC3	Bottle Blank	-	7/9/2012	Total Metals	Magnesium	50	U	ug/Bottle	50
E122803-03	MC3	Bottle Blank	-	7/9/2012	Total Metals	Calcium	50	U	ug/Bottle	50
E122803-03	MC3	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Bottle	20
E122803-03	MC3	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Bottle	20
E122803-03	MC3	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Ammonia as N	0.01	U	mg/Bottle	0.01

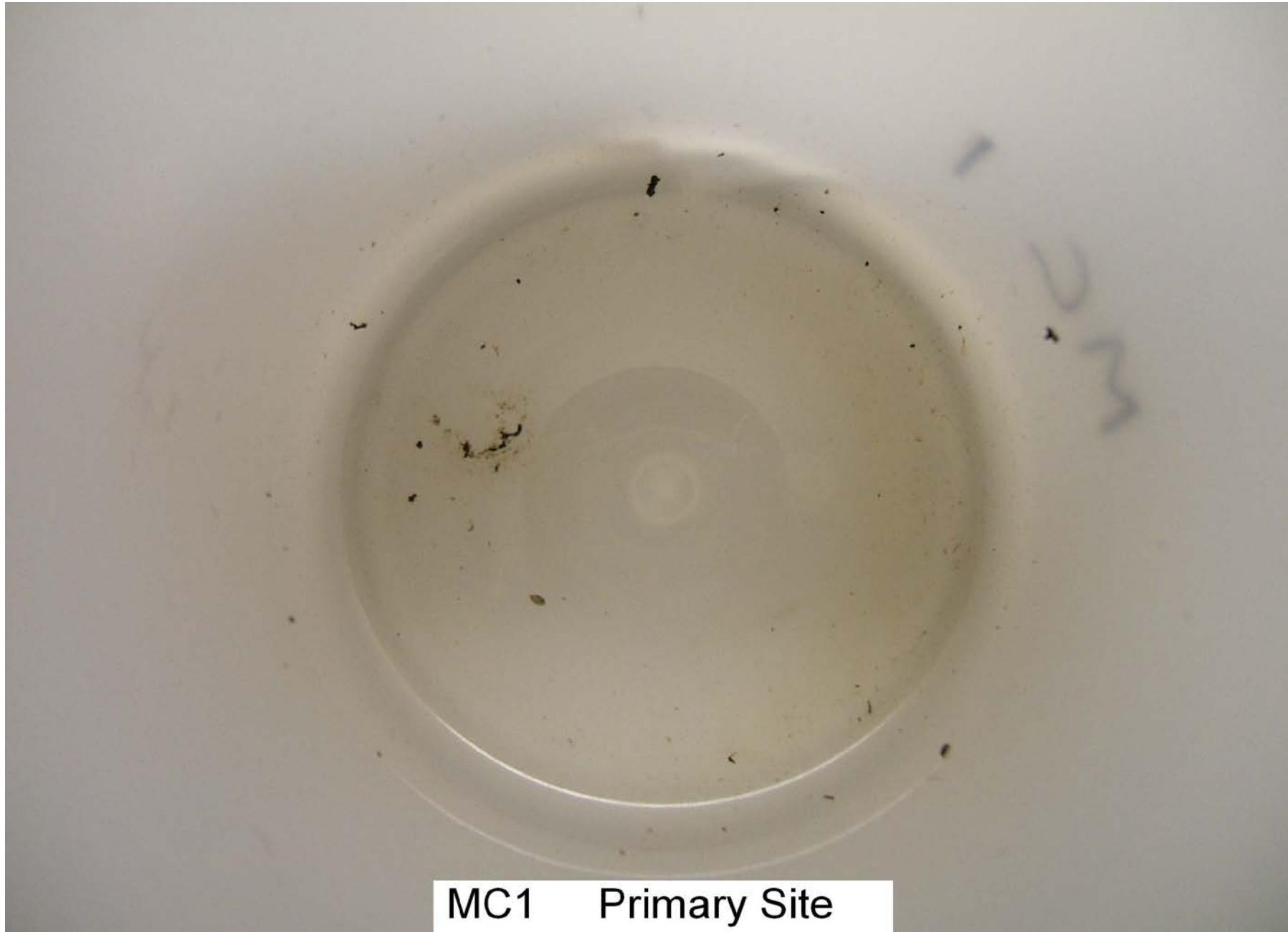
E122803-04	MC4	Bottle Blank	-	7/9/2012	Total Metals	Sodium	200	U	ug/Bottle	200
E122803-04	MC4	Bottle Blank	-	7/9/2012	Total Metals	Potassium	200	U	ug/Bottle	200
E122803-04	MC4	Bottle Blank	-	7/9/2012	Total Metals	Magnesium	50	U	ug/Bottle	50
E122803-04	MC4	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Ammonia as N	0.01	U	mg/Bottle	0.01
E122803-04	MC4	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Bottle	20
E122803-04	MC4	Bottle Blank	-	7/9/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Bottle	20
E122803-04	MC4	Bottle Blank	-	7/9/2012	Total Metals	Calcium	50	U	ug/Bottle	50
E124405-01	MC3	Field Blank	-	7/31/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Container	20
E124405-01	MC3	Field Blank	-	7/31/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Container	20
E124405-01	MC3	Field Blank	-	7/31/2012	Total Metals	Calcium	50	U	ug/Container	50
E124405-01	MC3	Field Blank	-	7/31/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Container	10
E124405-01	MC3	Field Blank	-	7/31/2012	Total Metals	Magnesium	50	U	ug/Container	50
E124405-01	MC3	Field Blank	-	7/31/2012	Total Metals	Potassium	200	U	ug/Container	200
E124405-01	MC3	Field Blank	-	7/31/2012	Total Metals	Sodium	200	U	ug/Container	200
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Classical/Nutrient Analyses	Sulfate as SO4	20	U	ug/Container	20
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Classical/Nutrient Analyses	Chloride	20	U	ug/Container	20
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Container	10
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Total Metals	Calcium	50	U	ug/Container	50
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Total Metals	Sodium	200	U	ug/Container	200
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Total Metals	Potassium	200	U	ug/Container	200
E124405-02	MC4	Trip Blank Air	-	10/18/2012	Total Metals	Magnesium	50	U	ug/Container	50
E124405-06	MC1	Air	YBA	7/31/2012	Total Metals	Potassium	730		ug/Container	200
E124405-06	MC1	Air	YBA	7/31/2012	Classical/Nutrient Analyses	Ammonia as N	10	U,J,O	ug/Container	10
E124405-06	MC1	Air	YBA	7/31/2012	Classical/Nutrient Analyses	Chloride	210		ug/Container	20
E124405-06	MC1	Air	YBA	7/31/2012	Classical/Nutrient Analyses	Sulfate as SO4	570		ug/Container	20
E124405-06	MC1	Air	YBA	7/31/2012	Total Metals	Calcium	370		ug/Container	50
E124405-06	MC1	Air	YBA	7/31/2012	Total Metals	Magnesium	78		ug/Container	50

E124405-06	MC1	Air	YBA	7/31/2012	Total Metals	Sodium	200	U	ug/Container	200
E124405-19	MC2	Air	YBB	7/31/2012	Total Metals	Sodium	200	U	ug/Container	200
E124405-19	MC2	Air	YBB	7/31/2012	Total Metals	Potassium	200	U	ug/Container	200
E124405-19	MC2	Air	YBB	7/31/2012	Total Metals	Magnesium	50	U	ug/Container	50
E124405-19	MC2	Air	YBB	7/31/2012	Classical/Nutrient Analyses	Ammonia as N	99	J,O	ug/Container	10
E124405-19	MC2	Air	YBB	7/31/2012	Classical/Nutrient Analyses	Sulfate as SO4	300		ug/Container	20
E124405-19	MC2	Air	YBB	7/31/2012	Classical/Nutrient Analyses	Chloride	68		ug/Container	20
E124405-19	MC2	Air	YBB	7/31/2012	Total Metals	Calcium	130		ug/Container	50

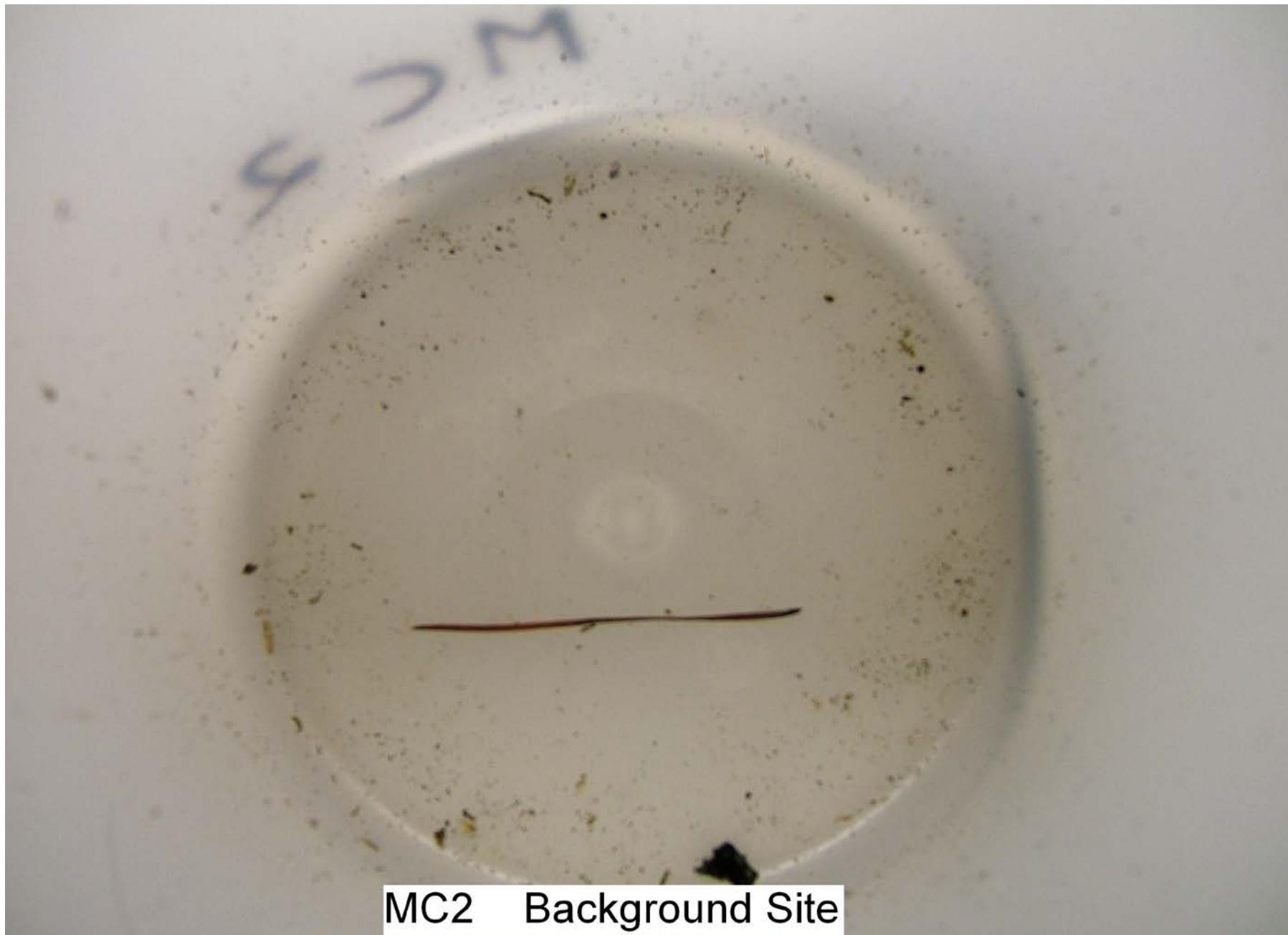
DEFINITIONS OF REGION 4	
ANALYTICAL DATA QUALIFIERS	
U	The analyte was not detected at or above the reporting limit.
A	The analyte was analyzed in replicate. Reported value is an average value of the replicates.
J	The identification of the analyte is acceptable; the reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
K	The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
L	The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
N	There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
NJ	Presumptive evidence that analyte is present; reported as a tentative identification with an estimated value.
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files.

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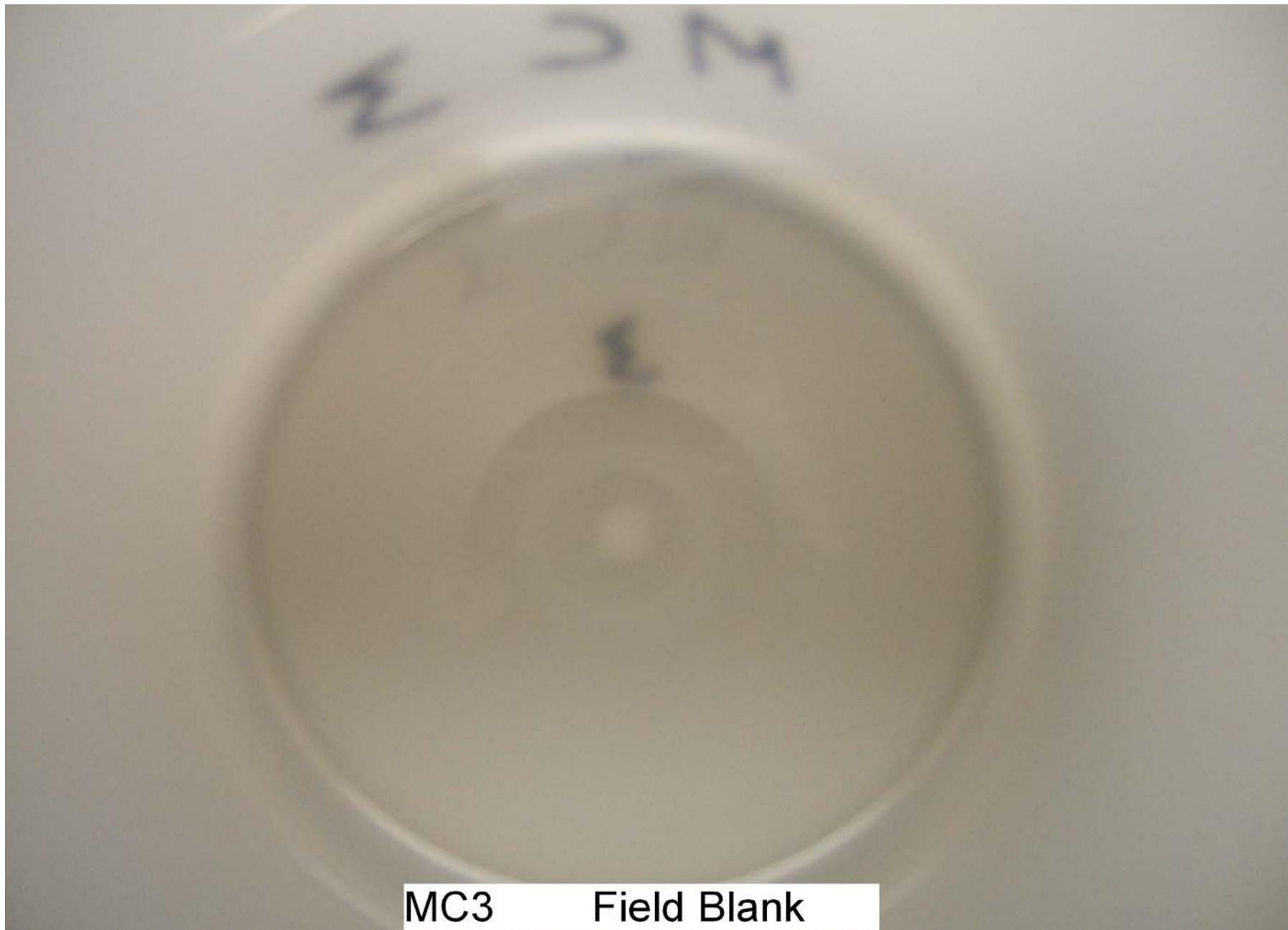
Appendix E – Deposition Sample Container Photographs



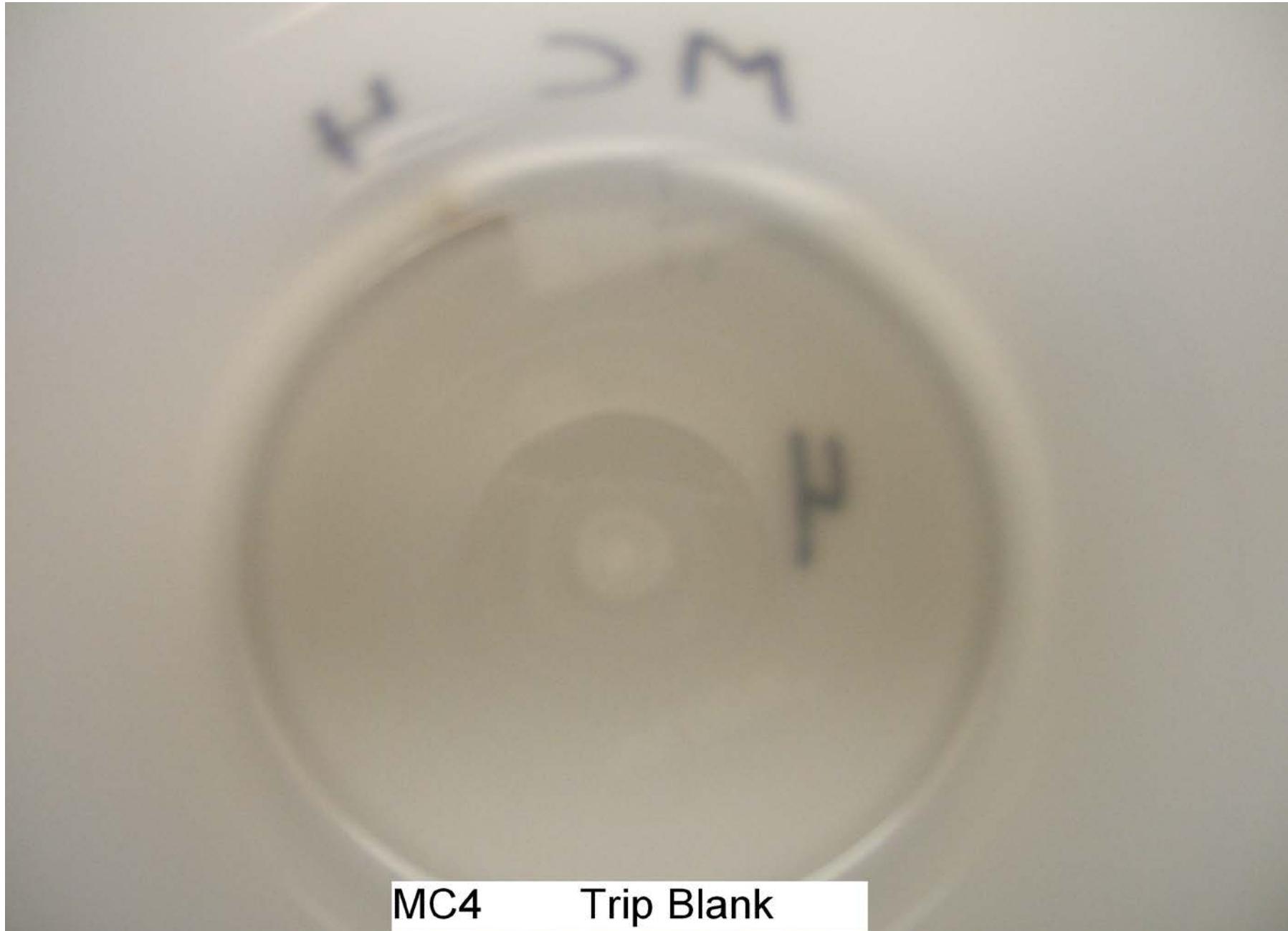
MC1 Primary Site



MC2 Background Site



MC3 Field Blank



MC4 Trip Blank

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Appendix F – SESD ASB Laboratory Reporting Sheets



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

July 31, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 12-0563, Yellow Bluff Dust Study
Air Quality Management

FROM: Mike Wasko
ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/secd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and may have been qualified if the applicable quality control criteria were not met. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Classical/Nutrient Analyses (CNA)

Ammonia/TKN	EPA 350.1
Classical/Nutrients	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

SAMPLES INCLUDED IN THIS REPORT

Project: 12-0563, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
MC1	E122803-01	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC2	E122803-02	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC3	E122803-03	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC4	E122803-04	Bottle Blank	7/9/12 08:00	7/9/12 11:36



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0563, Yellow Bluff Dust Study

Sample ID: MC1

Lab ID: E122803-01

Station ID:

Matrix: Bottle Blank

Date Collected: 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.010	U	mg/Bottle	0.010	7/20/12 13:23	7/24/12 16:03	EPA 350.1
16887-00-6	Chloride	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 23:06	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 15:12	EPA 300.0



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0563, Yellow Bluff Dust Study**Sample ID:** MC2**Lab ID:** E122803-02**Station ID:****Matrix:** Bottle Blank**Date Collected:** 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.010	U	mg/Bottle	0.010	7/20/12 13:23	7/24/12 16:03	EPA 350.1
16887-00-6	Chloride	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 23:27	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 15:12	EPA 300.0



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Classical/Nutrient Analyses

Project: 12-0563, Yellow Bluff Dust Study**Sample ID:** MC3**Lab ID:** E122803-03**Station ID:****Matrix:** Bottle Blank**Date Collected:** 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.010	U	mg/Bottle	0.010	7/20/12 13:23	7/24/12 16:03	EPA 350.1
16887-00-6	Chloride	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 23:49	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Bottle	20	7/24/12 15:12	7/24/12 15:12	EPA 300.0



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0563, Yellow Bluff Dust Study**Sample ID:** MC4**Lab ID:** E122803-04**Station ID:****Matrix:** Bottle Blank**Date Collected:** 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	0.010	U	mg/Bottle	0.010	7/20/12 13:23	7/24/12 16:03	EPA 350.1
16887-00-6	Chloride	20	U	ug/Bottle	20	7/24/12 15:12	7/25/12 0:10	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Bottle	20	7/24/12 15:12	7/25/12 0:10	EPA 300.0



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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1207083 - C 350.1 Ammonia

Blank (1207083-BLK1) Prepared: 07/20/12 Analyzed: 07/24/12

EPA 350.1

Ammonia as N U 0.010 mg/Bottle U

LCS (1207083-BS1)

Prepared: 07/20/12 Analyzed: 07/24/12

EPA 350.1

Ammonia as N 0.00095300 0.000050 mg/Bottle 0.0010000 95.3 90-110

LCS Dup (1207083-BSD1)

Prepared: 07/20/12 Analyzed: 07/24/12

EPA 350.1

Ammonia as N 0.00095700 0.000050 mg/Bottle 0.0010000 95.7 90-110 0.419 10

MRL Verification (1207083-PS1)

Prepared: 07/20/12 Analyzed: 07/24/12

EPA 350.1

Ammonia as N 0.000048000 0.000050 mg/Bottle 0.000050000 96.0 70-130 MRL-2, U



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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
MRL-2 MRL verification for Non-Potable Water matrix



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September 6, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report

Project: 12-0562, Yellow Bluff Dust Study

Air Quality Management

FROM: Mike Wasko

ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief

Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sestd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia/TKN
Classical/Nutrients

EPA 350.1 (Air)
EPA 300.0 (Air)

None
None

Total Metals (TMTL)

Total Metals

EPA 6010 (Air)

None



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Sample Disposal Policy

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These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



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SAMPLES INCLUDED IN THIS REPORT

Project: 12-0562, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
YBA102FB	E123207-01	Field Blank Air	8/2/12 12:55	8/10/12 9:19
YBA251FB	E123207-02	Field Blank Air	8/1/12 09:20	8/10/12 9:19
YBATSP3FB	E123207-03	Field Blank Air	8/3/12 13:46	8/10/12 9:19
YBBTB1	E123207-04	Blank Filter	8/3/12 14:00	8/10/12 9:19
YBA101	E123207-05	Ambient Air	8/1/12 10:20	8/10/12 9:19
YBA102	E123207-06	Ambient Air	8/2/12 12:55	8/10/12 9:19
YBA103	E123207-07	Ambient Air	8/3/12 13:53	8/10/12 9:19
YBA10C1	E123207-08	Ambient Air	8/2/12 13:00	8/10/12 9:19
YBA251	E123207-09	Ambient Air	8/1/12 09:20	8/10/12 9:19
YBA252	E123207-10	Ambient Air	8/2/12 12:50	8/10/12 9:19
YBA253	E123207-11	Ambient Air	8/3/12 13:49	8/10/12 9:19
YBA25C1	E123207-12	Ambient Air	8/1/12 10:32	8/10/12 9:19
YBATSP1	E123207-13	Ambient Air	8/1/12 10:29	8/10/12 9:19
YBATSP2	E123207-14	Ambient Air	8/2/12 12:58	8/10/12 9:19
YBATSP3	E123207-15	Ambient Air	8/3/12 13:46	8/10/12 9:19
YBATSP3C	E123207-16	Ambient Air	8/3/12 13:53	8/10/12 9:19
YBB101	E123207-17	Ambient Air	8/1/12 08:10	8/10/12 9:19
YBB102	E123207-18	Ambient Air	8/2/12 11:21	8/10/12 9:19
YBB103	E123207-19	Ambient Air	8/3/12 12:07	8/10/12 9:19
YBB251	E123207-20	Ambient Air	8/1/12 08:06	8/10/12 9:19
YBB252	E123207-21	Ambient Air	8/2/12 11:16	8/10/12 9:19
YBB253	E123207-22	Ambient Air	8/3/12 12:04	8/10/12 9:19
YBBTSP1	E123207-23	Ambient Air	8/1/12 08:10	8/10/12 9:19
YBBTSP2	E123207-24	Ambient Air	8/2/12 11:25	8/10/12 9:19
YBBTSP3	E123207-25	Ambient Air	8/3/12 12:08	8/10/12 9:19



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U

The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
ISO	The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1691.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: **YBA102FB**

Lab ID: **E123207-01**

Station ID:

Matrix: Field Blank Air

Date Collected: 8/2/12 12:55

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:05	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:05	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:05	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:05	EPA 6010



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA102FB**Lab ID:** E123207-01**Station ID:****Matrix:** Field Blank Air**Date Collected:** 8/2/12 12:55

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 21:42	EPA 300.0
14808-79-8	Sulfate as SO ₄	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 21:42	EPA 300.0



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D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA251FB

Lab ID: E123207-02

Station ID:

Matrix: Field Blank Air

Date Collected: 8/1/12 9:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:11	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:11	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:11	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:11	EPA 6010



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Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA251FB**Lab ID:** E123207-02**Station ID:****Matrix:** Field Blank Air**Date Collected:** 8/1/12 9:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 22:45	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 22:45	EPA 300.0



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Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP3FB

Lab ID: E123207-03

Station ID:

Matrix: Field Blank Air

Date Collected: 8/3/12 13:46

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:31	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:31	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:31	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:31	EPA 6010



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBATSP3FB**Lab ID:** E123207-03**Station ID:****Matrix:** Field Blank Air**Date Collected:** 8/3/12 13:46

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 23:06	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 23:06	EPA 300.0



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Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBBTB1

Lab ID: E123207-04

Station ID:

Matrix: Blank Filter

Date Collected: 8/3/12 14:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:37	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:37	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:37	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:37	EPA 6010



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBBTB1**Lab ID:** E123207-04**Station ID:****Matrix:** Blank Filter**Date Collected:** 8/3/12 14:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 23:28	EPA 300.0
14808-79-8	Sulfate as SO ₄	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 23:28	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA101

Lab ID: E123207-05

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/1/12 10:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:44	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:44	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:44	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:44	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA101**Lab ID:** E123207-05**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/1/12 10:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/27/12 23:49	EPA 300.0
14808-79-8	Sulfate as SO ₄	49		ug/Filter	20	8/24/12 11:21	8/27/12 23:49	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA102

Lab ID: E123207-06

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 12:55

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:50	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:50	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:50	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:50	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA102

Lab ID: E123207-06

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 12:55

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	11		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 0:10	EPA 300.0
14808-79-8	Sulfate as SO4	78		ug/Filter	20	8/24/12 11:21	8/28/12 0:10	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA103

Lab ID: E123207-07

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/3/12 13:53

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:57	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 18:57	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:57	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 18:57	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA103**Lab ID:** E123207-07**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/3/12 13:53

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 0:31	EPA 300.0
14808-79-8	Sulfate as SO4	70		ug/Filter	20	8/24/12 11:21	8/28/12 0:31	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA10C1

Lab ID: E123207-08

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:03	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:03	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:03	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:03	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA10C1**Lab ID:** E123207-08**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/2/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	13		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 0:53	EPA 300.0
14808-79-8	Sulfate as SO4	78		ug/Filter	20	8/24/12 11:21	8/28/12 0:53	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA251

Lab ID: E123207-09

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/1/12 9:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:10	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:10	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:10	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:10	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA251**Lab ID:** E123207-09**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/1/12 9:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 1:14	EPA 300.0
14808-79-8	Sulfate as SO ₄	47		ug/Filter	20	8/24/12 11:21	8/28/12 1:14	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA252

Lab ID: E123207-10

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 12:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:16	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:16	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:16	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:16	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA252

Lab ID: E123207-10

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 12:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	14		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 1:35	EPA 300.0
14808-79-8	Sulfate as SO4	77		ug/Filter	20	8/24/12 11:21	8/28/12 1:35	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA253

Lab ID: E123207-11

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/3/12 13:49

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:37	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:37	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:37	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:37	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA253**Lab ID:** E123207-11**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/3/12 13:49

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 3:00	EPA 300.0
14808-79-8	Sulfate as SO ₄	63		ug/Filter	20	8/24/12 11:21	8/28/12 3:00	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBA25C1

Lab ID: E123207-12

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/1/12 10:32

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:43	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 12:02	8/24/12 19:43	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:43	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 12:02	8/24/12 19:43	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBA25C1**Lab ID:** E123207-12**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/1/12 10:32

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 4:03	EPA 300.0
14808-79-8	Sulfate as SO4	44		ug/Filter	20	8/24/12 11:21	8/28/12 4:03	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP1

Lab ID: E123207-13

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/1/12 10:29

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:23	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:23	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:23	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:23	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP1

Lab ID: E123207-13

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/1/12 10:29

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 4:25	EPA 300.0
14808-79-8	Sulfate as SO4	49		ug/Filter	20	8/24/12 11:21	8/28/12 4:25	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP2

Lab ID: E123207-14

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/2/12 12:58

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:29	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:29	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:29	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:29	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBATSP2**Lab ID:** E123207-14**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/2/12 12:58

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	11		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 4:46	EPA 300.0
14808-79-8	Sulfate as SO4	80		ug/Filter	20	8/24/12 11:21	8/28/12 4:46	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP3

Lab ID: E123207-15

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/3/12 13:46

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:36	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:36	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:36	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:36	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP3

Lab ID: E123207-15

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/3/12 13:46

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 5:07	EPA 300.0
14808-79-8	Sulfate as SO4	71		ug/Filter	20	8/24/12 11:21	8/28/12 5:07	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBATSP3C

Lab ID: E123207-16

Station ID: YBA

Matrix: Ambient Air

Date Collected: 8/3/12 13:53

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:42	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 20:42	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:42	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 20:42	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBATSP3C**Lab ID:** E123207-16**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 8/3/12 13:53

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 5:28	EPA 300.0
14808-79-8	Sulfate as SO ₄	69		ug/Filter	20	8/24/12 11:21	8/28/12 5:28	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB101**Lab ID:** E123207-17**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/1/12 8:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:02	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:02	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:02	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:02	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBB101

Lab ID: E123207-17

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/1/12 8:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 5:50	EPA 300.0
14808-79-8	Sulfate as SO4	48		ug/Filter	20	8/24/12 11:21	8/28/12 5:50	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBB102

Lab ID: E123207-18

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/2/12 11:21

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:08	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:08	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:08	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:08	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB102**Lab ID:** E123207-18**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/2/12 11:21

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	18		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 6:11	EPA 300.0
14808-79-8	Sulfate as SO ₄	110		ug/Filter	20	8/24/12 11:21	8/28/12 6:11	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBB103

Lab ID: E123207-19

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/3/12 12:07

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:15	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:15	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:15	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:15	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB103**Lab ID:** E123207-19**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/3/12 12:07

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 6:32	EPA 300.0
14808-79-8	Sulfate as SO ₄	64		ug/Filter	20	8/24/12 11:21	8/28/12 6:32	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB251**Lab ID:** E123207-20**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/1/12 8:06

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:35	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:35	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:35	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:35	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB251**Lab ID:** E123207-20**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/1/12 8:06

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 6:53	EPA 300.0
14808-79-8	Sulfate as SO ₄	48		ug/Filter	20	8/24/12 11:21	8/28/12 6:53	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBB252

Lab ID: E123207-21

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/2/12 11:16

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:41	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:41	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:41	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:41	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB252**Lab ID:** E123207-21**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/2/12 11:16

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	21		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 8:18	EPA 300.0
14808-79-8	Sulfate as SO ₄	110		ug/Filter	20	8/24/12 11:21	8/28/12 8:18	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBB253

Lab ID: E123207-22

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/3/12 12:04

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:48	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:48	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:48	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:48	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBB253**Lab ID:** E123207-22**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/3/12 12:04

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 9:22	EPA 300.0
14808-79-8	Sulfate as SO4	65		ug/Filter	20	8/24/12 11:21	8/28/12 9:22	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBBTSP1**Lab ID:** E123207-23**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/1/12 8:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:54	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 21:54	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:54	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 21:54	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBBTSP1**Lab ID:** E123207-23**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/1/12 8:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 9:43	EPA 300.0
14808-79-8	Sulfate as SO4	49		ug/Filter	20	8/24/12 11:21	8/28/12 9:43	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBBTSP2

Lab ID: E123207-24

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/2/12 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 22:01	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 22:01	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 22:01	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 22:01	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBBTSP2

Lab ID: E123207-24

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/2/12 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	20		ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 10:04	EPA 300.0
14808-79-8	Sulfate as SO4	120		ug/Filter	20	8/24/12 11:21	8/28/12 10:04	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0562, Yellow Bluff Dust Study

Sample ID: YBBTSP3

Lab ID: E123207-25

Station ID: YBB

Matrix: Ambient Air

Date Collected: 8/3/12 12:08

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 22:21	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	8/20/12 16:22	8/24/12 22:21	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 22:21	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	8/20/12 16:22	8/24/12 22:21	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 12-0562, Yellow Bluff Dust Study**Sample ID:** YBBTSP3**Lab ID:** E123207-25**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 8/3/12 12:08

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U	ug/Filter	10	8/21/12 9:16	8/21/12 12:39	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	8/24/12 11:21	8/28/12 10:25	EPA 300.0
14808-79-8	Sulfate as SO4	70		ug/Filter	20	8/24/12 11:21	8/28/12 10:25	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208108 - M M/T Bottle-dry ice blk**Blank (1208108-BLK1)**

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	U	50	ug/Filter							U
Magnesium	U	50	"							U
Sodium	U	200	"							U
Potassium	U	200	"							U

LCS (1208108-BS1)

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	267.34	12	ug/Filter	250.00		107	85-115
Magnesium	266.29	12	"	250.00		107	85-115
Sodium	460.81	50	"	500.00		92.2	85-115
Potassium	446.52	50	"	500.00		89.3	85-115

Matrix Spike (1208108-MS1)**Source: E123207-02**

Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.3220		mg/L	5.0000	0.015403	106	75-125
Magnesium	5.3453		"	5.0000	0.034586	106	75-125
Sodium	9.1205		"	10.000	-0.00088231	91.2	75-125
Potassium	8.8062		"	10.000	0.0068541	88.0	75-125

Matrix Spike (1208108-MS2)**Source: E123207-12**

Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.8076		mg/L	5.0000	0.00099267	116	75-125
Magnesium	5.8327		"	5.0000	0.052312	116	75-125
Sodium	9.8730		"	10.000	-0.0019088	98.7	75-125
Potassium	9.3803		"	10.000	0.031114	93.5	75-125

Matrix Spike Dup (1208108-MSD1)**Source: E123207-02**

Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.3804		mg/L	5.0000	0.015403	107	75-125	20
Magnesium	5.3822		"	5.0000	0.034586	107	75-125	20
Sodium	9.2349		"	10.000	-0.00088231	92.4	75-125	20
Potassium	8.9087		"	10.000	0.0068541	89.0	75-125	20



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Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208108 - M M/T Bottle-dry ice blk

Matrix Spike Dup (1208108-MSD2)

Source: E123207-12

Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.2986		mg/L	5.0000	0.00099267	106	75-125		20	
Magnesium	5.2597		"	5.0000	0.052312	104	75-125		20	
Sodium	9.1793		"	10.000	-0.0019088	91.8	75-125		20	
Potassium	8.9534		"	10.000	0.031114	89.2	75-125		20	

MRL Verification (1208108-PS1)

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	13.209	12	ug/Filter	12.500		106	70-130		MRL-5	
Magnesium	14.520	12	"	12.500		116	70-130		MRL-5	
Sodium	45.512	50	"	50.000		91.0	70-130		MRL-5, U	
Potassium	43.527	50	"	50.000		87.1	70-130		MRL-5, U	

Batch 1208111 - M M/T Bottle-dry ice blk

Blank (1208111-BLK1)

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	U	50	ug/Filter						U	
Magnesium	U	50	"						U	
Sodium	U	200	"						U	
Potassium	U	200	"						U	

LCS (1208111-BS1)

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	270.44	12	ug/Filter	250.00		108	85-115			
Magnesium	270.63	12	"	250.00		108	85-115			
Sodium	460.80	50	"	500.00		92.2	85-115			
Potassium	445.14	50	"	500.00		89.0	85-115			

Matrix Spike (1208111-MS1)

Source: E123207-16

Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.2846		mg/L	5.0000	0.012581	105	75-125			
Magnesium	5.2276		"	5.0000	0.048604	104	75-125			
Sodium	9.0262		"	10.000	0.013609	90.1	75-125			
Potassium	8.7379		"	10.000	-0.0075230	87.5	75-125			



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208111 - M M/T Bottle-dry ice blk

Matrix Spike (1208111-MS2) Source: E123207-24 Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.2464	mg/L	5.0000	0.018742	105	75-125
Magnesium	5.2043	"	5.0000	0.016165	104	75-125
Sodium	8.9868	"	10.000	0.010530	89.8	75-125
Potassium	8.8115	"	10.000	0.027867	87.8	75-125

Matrix Spike Dup (1208111-MSD1)

Source: E123207-16 Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.2018	mg/L	5.0000	0.012581	104	75-125	20
Magnesium	5.2051	"	5.0000	0.048604	103	75-125	20
Sodium	8.9925	"	10.000	0.013609	89.8	75-125	20
Potassium	8.7260	"	10.000	-0.0075230	87.3	75-125	20

Matrix Spike Dup (1208111-MSD2)

Source: E123207-24 Prepared & Analyzed: 08/24/12

EPA 6010

Calcium	5.2998	mg/L	5.0000	0.018742	106	75-125	20
Magnesium	5.3295	"	5.0000	0.016165	106	75-125	20
Sodium	9.0624	"	10.000	0.010530	90.5	75-125	20
Potassium	8.7918	"	10.000	0.027867	87.6	75-125	20

MRL Verification (1208111-PS1)

Prepared: 08/20/12 Analyzed: 08/24/12

EPA 6010

Calcium	13.552	12	ug/Filter	12.500	108	70-130	MRL-5
Magnesium	14.967	12	"	12.500	120	70-130	MRL-5
Sodium	45.646	50	"	50.000	91.3	70-130	MRL-5, U
Potassium	44.573	50	"	50.000	89.1	70-130	MRL-5, U



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**Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD Limit	Notes
Batch 1208116 - M M/T Bottle-dry ice blk								
Blank (1208116-BLK1) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	U	10	ug/Filter					U
Blank (1208116-BLK2) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	U	10	ug/Filter					U
LCS (1208116-BS1) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	0.95600	0.050	ug/Filter	1.0000		95.6	90-110	
LCS (1208116-BS2) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	0.96500	0.050	ug/Filter	1.0000		96.5	90-110	
LCS Dup (1208116-BSD1) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	0.96500	0.050	ug/Filter	1.0000		96.5	90-110	0.937
LCS Dup (1208116-BSD2) Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	0.95200	0.050	ug/Filter	1.0000		95.2	90-110	1.36
Matrix Spike (1208116-MS1) Source: E123207-08 Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	1.0600		mg/L	1.0000	0.064000	99.6	90-110	
Matrix Spike (1208116-MS2) Source: E123207-17 Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	1.0060		mg/L	1.0000	0.017000	98.9	90-110	
Matrix Spike (1208116-MS3) Source: E123207-25 Prepared & Analyzed: 08/21/12								
EPA 350.1								
Ammonia as N	1.0290		mg/L	1.0000	0.038000	99.1	90-110	
Matrix Spike Dup (1208116-MSD1) Source: E123207-08 Prepared & Analyzed: 08/21/12								



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**Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208116 - M M/T Bottle-dry ice blk

Matrix Spike Dup (1208116-MSD1)	Source: E123207-08	Prepared & Analyzed: 08/21/12
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EPA 350.1

Ammonia as N	1.0850	mg/L	1.0000	0.064000	102	90-110	10
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Matrix Spike Dup (1208116-MSD2)

Source: E123207-17 Prepared & Analyzed: 08/21/12

EPA 350.1

Ammonia as N	1.0070	mg/L	1.0000	0.017000	99.0	90-110	10
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Matrix Spike Dup (1208116-MSD3)

Source: E123207-25 Prepared & Analyzed: 08/21/12

EPA 350.1

Ammonia as N	1.0370	mg/L	1.0000	0.038000	99.9	90-110	10
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MRL Verification (1208116-PS1)

Prepared & Analyzed: 08/21/12

EPA 350.1

Ammonia as N	0.050000	0.050 ug/Filter	0.050000	100	70-130	MRL-5
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Batch 1208141 - C M/T Bottle/Dry Ice Blank Prep

Blank (1208141-BLK1)	Prepared: 08/24/12 Analyzed: 08/27/12
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EPA 300.0

Sulfate as SO4	U	5.0 ug/Filter	U
Chloride	U	5.0 "	U

Blank (1208141-BLK2)

Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Sulfate as SO4	U	5.0 ug/Filter	U
Chloride	U	5.0 "	U

Blank (1208141-BLK3)

Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Chloride	U	5.0 ug/Filter	U
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Blank (1208141-BLK4)

Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Sulfate as SO4	U	5.0 ug/Filter	U
Chloride	U	5.0 "	U



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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208141 - C M/T Bottle/Dry Ice Blank Prep**Blank (1208141-BLK5)** Prepared: 08/24/12 Analyzed: 08/28/12**EPA 300.0**

Sulfate as SO4	U	5.0	ug/Filter							U
Chloride	U	5.0	"							U

Blank (1208141-BLK6)

Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Sulfate as SO4	U	5.0	ug/Filter							U
Chloride	U	5.0	"							U

LCS (1208141-BS1)

Prepared: 08/24/12 Analyzed: 08/27/12

EPA 300.0

Sulfate as SO4	49.900	5.0	ug/Filter	50.000	99.8	90-110
Chloride	50.000	5.0	"	50.000	100	90-110

LCS Dup (1208141-BSD1)

Prepared: 08/24/12 Analyzed: 08/27/12

EPA 300.0

Sulfate as SO4	50.200	5.0	ug/Filter	50.000	100	90-110	0.599	10
Chloride	49.800	5.0	"	50.000	99.6	90-110	0.401	10

Matrix Spike (1208141-MS1)

Source: E123207-01 Prepared: 08/24/12 Analyzed: 08/27/12

EPA 300.0

Sulfate as SO4	0.98800		mg/L	1.0000	0.011000	97.7	90-110
Chloride	0.99800		"	1.0000	0.014000	98.4	90-110

Matrix Spike (1208141-MS2)

Source: E123207-11 Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Sulfate as SO4	1.3310		mg/L	1.0000	0.31500	102	90-110
Chloride	1.0150		"	1.0000	0.0090000	101	90-110

Matrix Spike (1208141-MS3)

Source: E123207-21 Prepared: 08/24/12 Analyzed: 08/28/12

EPA 300.0

Sulfate as SO4	1.5710		mg/L	1.0000	0.57000	100	90-110
Chloride	1.0010		"	1.0000	0.0080000	99.3	90-110

Matrix Spike Dup (1208141-MSD1)

Source: E123207-01 Prepared: 08/24/12 Analyzed: 08/27/12

EPA 300.0

Sulfate as SO4	0.98700		mg/L	1.0000	0.011000	97.6	90-110	10
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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1208141 - C M/T Bottle/Dry Ice Blank Prep

Matrix Spike Dup (1208141-MSD1)	Source: E123207-01	Prepared: 08/24/12 Analyzed: 08/27/12
Chloride	0.99500	mg/L 1.0000 0.014000 98.1 90-110 10

Matrix Spike Dup (1208141-MSD2)	Source: E123207-11	Prepared: 08/24/12 Analyzed: 08/28/12
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EPA 300.0	Source: E123207-11	Prepared: 08/24/12 Analyzed: 08/28/12
Sulfate as SO4	1.3200 mg/L 1.0000 0.31500 100 90-110 10	
Chloride	1.0040 " 1.0000 0.0090000 99.5 90-110 10	

Matrix Spike Dup (1208141-MSD3)	Source: E123207-21	Prepared: 08/24/12 Analyzed: 08/28/12
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EPA 300.0	Source: E123207-21	Prepared: 08/24/12 Analyzed: 08/28/12
Sulfate as SO4	1.5630 mg/L 1.0000 0.57000 99.3 90-110 10	
Chloride	0.98800 " 1.0000 0.0080000 98.0 90-110 10	

MRL Verification (1208141-PS1)	Source: E123207-21	Prepared: 08/24/12 Analyzed: 08/27/12
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EPA 300.0	Source: E123207-21	Prepared: 08/24/12 Analyzed: 08/27/12
Sulfate as SO4	8.9000 ug/Filter 10.000 89.0 70-130 MRL-5, U	
Chloride	8.9000 " 10.000 89.0 70-130 MRL-5, U	



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Project: 12-0562, Yellow Bluff Dust Study - Reported by Mike Wasko

Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
MRL-5 MRL verification for Air matrix



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

July 31, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 12-0563, Yellow Bluff Dust Study
Air Quality Management

FROM: Mike Wasko
ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/secd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and may have been qualified if the applicable quality control criteria were not met. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Total Metals (TMTL)

Total Metals

EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



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D.A.R.T. Id: 12-0562

Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

SAMPLES INCLUDED IN THIS REPORT

Project: 12-0563, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
MC1	E122803-01	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC2	E122803-02	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC3	E122803-03	Bottle Blank	7/9/12 08:00	7/9/12 11:36
MC4	E122803-04	Bottle Blank	7/9/12 08:00	7/9/12 11:36



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Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0563, Yellow Bluff Dust Study

Sample ID: MC1

Lab ID: E122803-01

Station ID:

Matrix: Bottle Blank

Date Collected: 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 9:54	EPA 6010
7439-95-4	Magnesium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 9:54	EPA 6010
7440-09-7	Potassium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 9:54	EPA 6010
7440-23-5	Sodium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 9:54	EPA 6010



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D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0563, Yellow Bluff Dust Study

Sample ID: MC2

Lab ID: E122803-02

Station ID:

Matrix: Bottle Blank

Date Collected: 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 9:57	EPA 6010
7439-95-4	Magnesium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 9:57	EPA 6010
7440-09-7	Potassium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 9:57	EPA 6010
7440-23-5	Sodium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 9:57	EPA 6010



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Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0563, Yellow Bluff Dust Study

Sample ID: MC3

Lab ID: E122803-03

Station ID:

Matrix: Bottle Blank

Date Collected: 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 10:00	EPA 6010
7439-95-4	Magnesium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 10:00	EPA 6010
7440-09-7	Potassium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 10:00	EPA 6010
7440-23-5	Sodium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 10:00	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 12-0563, Yellow Bluff Dust Study

Sample ID: MC4

Lab ID: E122803-04

Station ID:

Matrix: Bottle Blank

Date Collected: 7/9/12 8:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 10:02	EPA 6010
7439-95-4	Magnesium	50	U	ug/Bottle	50	7/24/12 15:10	7/25/12 10:02	EPA 6010
7440-09-7	Potassium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 10:02	EPA 6010
7440-23-5	Sodium	200	U	ug/Bottle	200	7/24/12 15:10	7/25/12 10:02	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

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D.A.R.T. Id: 12-0562

Project: 12-0563, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1207076 - M M/T Bottle-dry ice blk**Blank (1207076-BLK1)**

Prepared: 07/24/12 Analyzed: 07/25/12

EPA 6010

Calcium	U	50	ug/Bottle							U
Magnesium	U	50	"							U
Sodium	U	200	"							U
Potassium	U	200	"							U

LCS (1207076-BS1)

Prepared: 07/24/12 Analyzed: 07/25/12

EPA 6010

Calcium	246.89	12	ug/Bottle	250.00	98.8	85-115
Magnesium	258.22	12	"	250.00	103	85-115
Sodium	477.79	50	"	500.00	95.6	85-115
Potassium	466.23	50	"	500.00	93.2	85-115

LCS Dup (1207076-BSD1)

Prepared: 07/24/12 Analyzed: 07/25/12

EPA 6010

Calcium	247.04	12	ug/Bottle	250.00	98.8	85-115	0.0618	10
Magnesium	259.62	12	"	250.00	104	85-115	0.539	10
Sodium	481.52	50	"	500.00	96.3	85-115	0.778	10
Potassium	476.70	50	"	500.00	95.3	85-115	2.22	10

MRL Verification (1207076-PS1)

Prepared: 07/24/12 Analyzed: 07/25/12

EPA 6010

Calcium	2.3672	2.5	ug/Bottle	2.5000	94.7	70-130			MRL-2, U
Magnesium	3.1985	2.5	"	2.5000	128	70-130			MRL-2
Sodium	10.374	10	"	10.000	104	70-130			MRL-2
Potassium	10.491	10	"	10.000	105	70-130			MRL-2



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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
MRL-2 MRL verification for Non-Potable Water matrix



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

December 5, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 13-0013, Yellow Bluff Dust Study
Air Quality Management

FROM: Mike Wasko
ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/secd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia/TKN	EPA 350.1 (Air)	None
Classical/Nutrients	EPA 300.0 (Air)	None

Total Metals (TMTL)

Total Metals	EPA 6010 (Air)	None
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

SAMPLES INCLUDED IN THIS REPORT

Project: 13-0013, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
MC3	E124405-01	Field Blank	7/31/12 15:00	11/1/12 14:45
MC4	E124405-02	Trip Blank Air	10/18/12 11:07	11/1/12 14:45
MC1	E124405-06	Air	7/31/12 15:02	11/1/12 14:45
MC2	E124405-19	Air	7/31/12 13:00	11/1/12 14:45



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

CR Negative bias possible due to imprecise matrix matching of sample extract to baseline.

H-4 Holding time expired prior to receipt by laboratory.

J The identification of the analyte is acceptable; the reported value is an estimate.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1691.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** MC3**Lab ID:** E124405-01**Station ID:****Matrix:** Field Blank**Date Collected:** 7/31/12 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:26	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:26	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:26	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:26	EPA 6010



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** MC3**Lab ID:** E124405-01**Station ID:****Matrix:** Field Blank**Date Collected:** 7/31/12 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:12	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:12	EPA 300.0



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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC4

Lab ID: E124405-02

Station ID:

Matrix: Trip Blank Air

Date Collected: 10/18/12 11:07

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:31	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:31	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:31	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:31	EPA 6010



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Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC4

Lab ID: E124405-02

Station ID:

Matrix: Trip Blank Air

Date Collected: 10/18/12 11:07

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:34	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Container	20	11/20/12 15:11	11/26/12 20:34	EPA 300.0



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** MC1**Lab ID:** E124405-06**Station ID:** YBA**Matrix:** Air**Date Collected:** 7/31/12 15:02

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	370		ug/Container	50	11/07/12 14:20	11/14/12 21:48	EPA 6010
7439-95-4	Magnesium	78		ug/Container	50	11/07/12 14:20	11/14/12 21:48	EPA 6010
7440-09-7	Potassium	730		ug/Container	200	11/07/12 14:20	11/14/12 21:48	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:48	EPA 6010



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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC1

Lab ID: E124405-06

Station ID: YBA

Matrix: Air

Date Collected: 7/31/12 15:02

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	210		ug/Container	20	11/20/12 15:11	11/26/12 21:58	EPA 300.0
14808-79-8	Sulfate as SO4	570		ug/Container	20	11/20/12 15:11	11/26/12 21:58	EPA 300.0



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Region 4 Science and Ecosystem Support Division
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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: MC2

Lab ID: E124405-19

Station ID: YBB

Matrix: Air

Date Collected: 7/31/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	130		ug/Container	50	11/07/12 14:20	11/14/12 21:54	EPA 6010
7439-95-4	Magnesium	50	U	ug/Container	50	11/07/12 14:20	11/14/12 21:54	EPA 6010
7440-09-7	Potassium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:54	EPA 6010
7440-23-5	Sodium	200	U	ug/Container	200	11/07/12 14:20	11/14/12 21:54	EPA 6010



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Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** MC2**Lab ID:** E124405-19**Station ID:** YBB**Matrix:** Air**Date Collected:** 7/31/12 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	99	J, H-4	ug/Container	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	68		ug/Container	20	11/20/12 15:11	11/27/12 4:20	EPA 300.0
14808-79-8	Sulfate as SO4	300		ug/Container	20	11/20/12 15:11	11/27/12 4:20	EPA 300.0



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Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211026 - M Air Filter Prep**Blank (1211026-BLK1)**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	U	50	ug/Container							U
Magnesium	U	50	"							U
Sodium	U	200	"							U
Potassium	U	200	"							U

LCS (1211026-BS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9724	mg/L	5.0000		99.4	85-115
Magnesium	5.3422	"	5.0000		107	85-115
Sodium	10.245	"	10.000		102	85-115
Potassium	9.8064	"	10.000		98.1	85-115

Matrix Spike (1211026-MS1)**Source: E124405-02**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9795	mg/L	5.0000	-0.012127	99.8	75-125
Magnesium	5.3040	"	5.0000	-0.14299	109	75-125
Sodium	10.148	"	10.000	0.081883	101	75-125
Potassium	9.7803	"	10.000	0.014353	97.7	75-125

Matrix Spike Dup (1211026-MSD1)**Source: E124405-02**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9716	mg/L	5.0000	-0.012127	99.7	75-125	20
Magnesium	5.3285	"	5.0000	-0.14299	109	75-125	20
Sodium	10.219	"	10.000	0.081883	101	75-125	20
Potassium	9.7825	"	10.000	0.014353	97.7	75-125	20

MRL Verification (1211026-PS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	0.25446	mg/L	0.25000		102	70-130	MRL-2
Magnesium	0.26403	"	0.25000		106	70-130	MRL-2
Sodium	1.0442	"	1.0000		104	70-130	MRL-2
Potassium	1.0142	"	1.0000		101	70-130	MRL-2



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211031 - M M/T Bottle-dry ice blk

Blank (1211031-BLK1) Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N U 10 ug/Container U

Blank (1211031-BLK2)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N U 10 ug/Container U

LCS (1211031-BS1)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.94900 0.050 ug/Container 1.0000 94.9 90-110

LCS (1211031-BS2)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.95100 0.050 ug/Container 1.0000 95.1 90-110

Matrix Spike (1211031-MS1)

Source: E124405-08 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 1.0070 mg/L 1.0000 -0.048000 106 90-110

Matrix Spike (1211031-MS2)

Source: E124405-16 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.98100 mg/L 1.0000 -0.073000 105 90-110

Matrix Spike (1211031-MS3)

Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.99800 mg/L 1.0000 -0.044000 104 90-110

Matrix Spike Dup (1211031-MSD1)

Source: E124405-08 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 1.0050 mg/L 1.0000 -0.048000 105 90-110 10

Matrix Spike Dup (1211031-MSD2)

Source: E124405-16 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.97700 mg/L 1.0000 -0.073000 105 90-110 10

Matrix Spike Dup (1211031-MSD3)

Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211031 - M M/T Bottle-dry ice blk

Matrix Spike Dup (1211031-MSD3) Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.98900 mg/L 1.0000 -0.044000 103 90-110 10

MRL Verification (1211031-PS1)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.053000 0.050 ug/Container 0.050000 106 70-130 MRL-2

Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Blank (1211086-BLK1) Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Container U
Chloride U 5.0 " U

Blank (1211086-BLK2)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Container U
Chloride U 5.0 " U

Blank (1211086-BLK3)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Container U
Chloride U 5.0 " U

Blank (1211086-BLK4)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Container U
Chloride U 5.0 " U

Blank (1211086-BLK5)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Container U
Chloride U 5.0 " U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep**Blank (1211086-BLK6)** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	U	5.0	ug/Container							U
Chloride	U	5.0	"							U

LCS (1211086-BS1)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	49.800	5.0	ug/Container	50.000		99.6	90-110
Chloride	49.750	5.0	"	50.000		99.5	90-110

Matrix Spike (1211086-MS1)**Source: E124405-10** Prepared: 11/20/12 Analyzed: 11/26/12**EPA 300.0**

Sulfate as SO4	1.1020	mg/L	1.0000	0.14000	96.2	90-110
Chloride	0.98700	"	1.0000	0.026000	96.1	90-110

Matrix Spike (1211086-MS2)**Source: E124405-20** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1330	mg/L	1.0000	0.14000	99.3	90-110
Chloride	1.0100	"	1.0000	0.0090000	100	90-110

Matrix Spike (1211086-MS3)**Source: E124405-28** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1290	mg/L	1.0000	0.14300	98.6	90-110
Chloride	1.0140	"	1.0000	0.018000	99.6	90-110

Matrix Spike Dup (1211086-MSD1)**Source: E124405-10** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1030	mg/L	1.0000	0.14000	96.3	90-110	10
Chloride	0.97900	"	1.0000	0.026000	95.3	90-110	10

Matrix Spike Dup (1211086-MSD2)**Source: E124405-20** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1240	mg/L	1.0000	0.14000	98.4	90-110	10
Chloride	0.99800	"	1.0000	0.0090000	98.9	90-110	10

Matrix Spike Dup (1211086-MSD3)**Source: E124405-28** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1120	mg/L	1.0000	0.14300	96.9	90-110	10
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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Matrix Spike Dup (1211086-MSD3)	Source: E124405-28	Prepared: 11/20/12	Analyzed: 11/27/12
Chloride	0.99900	mg/L	1.0000 0.018000 98.1 90-110 10

MRL Verification (1211086-PS1) Prepared: 11/20/12 Analyzed: 11/26/12**EPA 300.0**

Sulfate as SO4	4.8500	5.0 ug/Container	5.0000	97.0	70-130	MRL-2, U
Chloride	4.7500	5.0 "	5.0000	95.0	70-130	MRL-2, U



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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
MRL-2 MRL verification for Non-Potable Water matrix



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Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

December 5, 2012

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 13-0013, Yellow Bluff Dust Study
Air Quality Management

FROM: Mike Wasko
ASB Inorganic Chemistry Section Chief

THRU: Gary Bennett, Chief
Analytical Support Branch

TO: Michael Crowe

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/secd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Classical/Nutrient Analyses (CNA)

Ammonia/TKN	EPA 350.1 (Air)	None
Classical/Nutrients	EPA 300.0 (Air)	None

Total Metals (TMTL)

Total Metals	EPA 6010 (Air)	None
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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator, Debbie Colquitt, by e-mail at Colquitt.Debbie@epa.gov, and provide a reason for holding samples beyond 60 days



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

SAMPLES INCLUDED IN THIS REPORT

Project: 13-0013, Yellow Bluff Dust Study

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
YBA105FB	E124405-03	Air	10/17/12 12:00	11/1/12 14:45
YBA256FB	E124405-04	Field Blank Air	10/18/12 13:30	11/1/12 14:45
YBATSP4FB	E124405-05	Field Blank Air	10/16/12 00:00	11/1/12 14:45
YBA104	E124405-07	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBA105	E124405-08	Ambient Air	10/17/12 12:00	11/1/12 14:45
YBA106	E124405-09	Ambient Air	10/18/12 13:30	11/1/12 14:45
YBA10C5	E124405-10	Ambient Air	10/17/12 12:00	11/1/12 14:45
YBA254	E124405-11	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBA255	E124405-12	Ambient Air	10/17/12 12:00	11/1/12 14:45
YBA256	E124405-13	Ambient Air	10/18/12 13:30	11/1/12 14:45
YBA25C6	E124405-14	Ambient Air	10/18/12 13:30	11/1/12 14:45
YBATSC4	E124405-15	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBATSP4	E124405-16	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBATSP5	E124405-17	Ambient Air	10/17/12 12:00	11/1/12 14:45
YBATSP6	E124405-18	Ambient Air	10/18/12 13:30	11/1/12 14:45
YBB104	E124405-20	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBB105	E124405-21	Ambient Air	10/17/12 10:00	11/1/12 14:45
YBB106	E124405-22	Ambient Air	10/18/12 10:45	11/1/12 14:45
YBB254	E124405-23	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBB255	E124405-24	Ambient Air	10/17/12 10:00	11/1/12 14:45
YBB256	E124405-25	Ambient Air	10/18/12 10:45	11/1/12 14:45
YBBTSP4	E124405-26	Ambient Air	10/16/12 00:00	11/1/12 14:45
YBBTSP5	E124405-27	Ambient Air	10/17/12 10:00	11/1/12 14:45
YBBTSP6	E124405-28	Ambient Air	10/18/12 10:45	11/1/12 14:45



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

CR Negative bias possible due to imprecise matrix matching of sample extract to baseline.

J The identification of the analyte is acceptable; the reported value is an estimate.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1691.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: [YBA105FB](#)

Lab ID: [E124405-03](#)

Station ID: [YBA](#)

Matrix: Air

Date Collected: 10/17/12 12:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:34	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:34	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:34	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:34	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: **YBA105FB**

Lab ID: **E124405-03**

Station ID: **YBA**

Matrix: Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 20:55	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 20:55	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA256FB

Lab ID: E124405-04

Station ID: YBA

Matrix: Field Blank Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:39	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:39	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:39	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:39	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: **YBA256FB**

Lab ID: **E124405-04**

Station ID: **YBA**

Matrix: Field Blank Air

Date Collected: 10/18/12 13:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 21:16	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 21:16	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBATSP4FB**Lab ID:** E124405-05**Station ID:** YBA**Matrix:** Field Blank Air**Date Collected:** 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:45	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 17:45	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:45	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 17:45	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP4FB

Lab ID: E124405-05

Station ID: YBA

Matrix: Field Blank Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 21:37	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 21:37	EPA 300.0



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Region 4 Science and Ecosystem Support Division

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBA104**Lab ID:** E124405-07**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:01	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:01	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:01	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:01	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBA104**Lab ID:** E124405-07**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 22:20	EPA 300.0
14808-79-8	Sulfate as SO4	34		ug/Filter	20	11/20/12 15:11	11/26/12 22:20	EPA 300.0



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980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA105

Lab ID: E124405-08

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:07	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:07	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:07	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:07	EPA 6010



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D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA105

Lab ID: E124405-08

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 22:41	EPA 300.0
14808-79-8	Sulfate as SO4	26		ug/Filter	20	11/20/12 15:11	11/26/12 22:41	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBA106**Lab ID:** E124405-09**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:12	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:12	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:12	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:12	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

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Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBA106**Lab ID:** E124405-09**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 23:02	EPA 300.0
14808-79-8	Sulfate as SO4	37		ug/Filter	20	11/20/12 15:11	11/26/12 23:02	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA10C5

Lab ID: E124405-10

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:18	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:18	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:18	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:18	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA10C5

Lab ID: E124405-10

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/26/12 23:23	EPA 300.0
14808-79-8	Sulfate as SO4	28		ug/Filter	20	11/20/12 15:11	11/26/12 23:23	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA254

Lab ID: E124405-11

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:48	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:48	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:48	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:48	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA254

Lab ID: E124405-11

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 1:31	EPA 300.0
14808-79-8	Sulfate as SO4	27		ug/Filter	20	11/20/12 15:11	11/27/12 1:31	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBA255**Lab ID:** E124405-12**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:54	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:54	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:54	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:54	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA255

Lab ID: E124405-12

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 1:52	EPA 300.0
14808-79-8	Sulfate as SO4	24		ug/Filter	20	11/20/12 15:11	11/27/12 1:52	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA256

Lab ID: E124405-13

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:59	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 18:59	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:59	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 18:59	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA256

Lab ID: E124405-13

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 2:13	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 2:13	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA25C6

Lab ID: E124405-14

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:05	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:05	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:05	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:05	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBA25C6

Lab ID: E124405-14

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 2:34	EPA 300.0
14808-79-8	Sulfate as SO4	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 2:34	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSC4

Lab ID: E124405-15

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:21	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:21	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:21	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:21	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSC4

Lab ID: E124405-15

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 2:55	EPA 300.0
14808-79-8	Sulfate as SO4	36		ug/Filter	20	11/20/12 15:11	11/27/12 2:55	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP4

Lab ID: E124405-16

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:27	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:27	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:27	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:27	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBATSP4**Lab ID:** E124405-16**Station ID:** YBA**Matrix:** Ambient Air**Date Collected:** 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 3:17	EPA 300.0
14808-79-8	Sulfate as SO4	56		ug/Filter	20	11/20/12 15:11	11/27/12 3:17	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP5

Lab ID: E124405-17

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:33	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:33	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:33	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:33	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP5

Lab ID: E124405-17

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/17/12 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 3:38	EPA 300.0
14808-79-8	Sulfate as SO4	29		ug/Filter	20	11/20/12 15:11	11/27/12 3:38	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP6

Lab ID: E124405-18

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:38	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:38	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:38	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:38	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBATSP6

Lab ID: E124405-18

Station ID: YBA

Matrix: Ambient Air

Date Collected: 10/18/12 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 3:59	EPA 300.0
14808-79-8	Sulfate as SO4	24		ug/Filter	20	11/20/12 15:11	11/27/12 3:59	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB104

Lab ID: E124405-20

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:44	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:44	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:44	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:44	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB104

Lab ID: E124405-20

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 4:42	EPA 300.0
14808-79-8	Sulfate as SO4	28		ug/Filter	20	11/20/12 15:11	11/27/12 4:42	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB105

Lab ID: E124405-21

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:49	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 19:49	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:49	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 19:49	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB105

Lab ID: E124405-21

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 6:49	EPA 300.0
14808-79-8	Sulfate as SO4	28		ug/Filter	20	11/20/12 15:11	11/27/12 6:49	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBB106**Lab ID:** E124405-22**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:07	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:07	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:07	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:07	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB106

Lab ID: E124405-22

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 7:10	EPA 300.0
14808-79-8	Sulfate as SO4	25		ug/Filter	20	11/20/12 15:11	11/27/12 7:10	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB254

Lab ID: E124405-23

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:12	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:12	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:12	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:12	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB254

Lab ID: E124405-23

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 7:31	EPA 300.0
14808-79-8	Sulfate as SO4	26		ug/Filter	20	11/20/12 15:11	11/27/12 7:31	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBB255**Lab ID:** E124405-24**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:18	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:18	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:18	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:18	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB255

Lab ID: E124405-24

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 7:53	EPA 300.0
14808-79-8	Sulfate as SO4	24		ug/Filter	20	11/20/12 15:11	11/27/12 7:53	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB256

Lab ID: E124405-25

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:23	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:23	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:23	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:23	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBB256

Lab ID: E124405-25

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 8:14	EPA 300.0
14808-79-8	Sulfate as SO4	24		ug/Filter	20	11/20/12 15:11	11/27/12 8:14	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBBTSP4

Lab ID: E124405-26

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:40	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:40	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:40	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:40	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBBTSP4

Lab ID: E124405-26

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/16/12 0:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 8:35	EPA 300.0
14808-79-8	Sulfate as SO4	29		ug/Filter	20	11/20/12 15:11	11/27/12 8:35	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBBTSP5**Lab ID:** E124405-27**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:46	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:46	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:46	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:46	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBBTSP5

Lab ID: E124405-27

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/17/12 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 8:56	EPA 300.0
14808-79-8	Sulfate as SO4	29		ug/Filter	20	11/20/12 15:11	11/27/12 8:56	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals

Project: 13-0013, Yellow Bluff Dust Study**Sample ID:** YBBTSP6**Lab ID:** E124405-28**Station ID:** YBB**Matrix:** Ambient Air**Date Collected:** 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-70-2	Calcium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:51	EPA 6010
7439-95-4	Magnesium	50	U	ug/Filter	50	11/07/12 14:09	11/14/12 20:51	EPA 6010
7440-09-7	Potassium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:51	EPA 6010
7440-23-5	Sodium	200	U	ug/Filter	200	11/07/12 14:09	11/14/12 20:51	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses

Project: 13-0013, Yellow Bluff Dust Study

Sample ID: YBBTSP6

Lab ID: E124405-28

Station ID: YBB

Matrix: Ambient Air

Date Collected: 10/18/12 10:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7664-41-7	Ammonia as N	10	U, J, CR	ug/Filter	10	11/08/12 10:52	11/09/12 13:16	EPA 350.1
16887-00-6	Chloride	20	U	ug/Filter	20	11/20/12 15:11	11/27/12 9:17	EPA 300.0
14808-79-8	Sulfate as SO4	29		ug/Filter	20	11/20/12 15:11	11/27/12 9:17	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211025 - M Air Filter Prep**Blank (1211025-BLK1)**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Aluminum	U	20	ug/Filter							U
Calcium	U	50	"							U
Magnesium	U	50	"							U
Sodium	U	200	"							U
Potassium	U	200	"							U

LCS (1211025-BS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9672	mg/L	5.0000	99.3	85-115
Magnesium	5.3102	"	5.0000	106	85-115
Sodium	10.201	"	10.000	102	85-115
Potassium	9.8005	"	10.000	98.0	85-115

Matrix Spike (1211025-MS1)**Source: E124405-05**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	5.0346	mg/L	5.0000	0.18236	97.0	75-125
Magnesium	5.3275	"	5.0000	-0.17010	110	75-125
Sodium	10.234	"	10.000	0.11061	101	75-125
Potassium	9.9342	"	10.000	0.075073	98.6	75-125

Matrix Spike (1211025-MS2)**Source: E124405-14**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.9714	mg/L	5.0000	0.10147	97.4	75-125
Magnesium	5.3151	"	5.0000	-0.13189	109	75-125
Sodium	10.208	"	10.000	-0.019615	102	75-125
Potassium	9.8215	"	10.000	0.60081	92.2	75-125

Matrix Spike (1211025-MS3)**Source: E124405-25**

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	4.8968	mg/L	5.0000	-0.011048	98.2	75-125
Magnesium	5.2894	"	5.0000	0.27139	100	75-125
Sodium	10.126	"	10.000	0.19031	99.4	75-125
Potassium	9.6527	"	10.000	0.73366	89.2	75-125



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 12-0562

Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Total Metals (TMTL) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211025 - M Air Filter Prep**Matrix Spike Dup (1211025-MSD1)** **Source: E124405-05** Prepared: 11/07/12 Analyzed: 11/14/12**EPA 6010**

Calcium	4.9634	mg/L	5.0000	0.18236	95.6	75-125	20
Magnesium	5.2711	"	5.0000	-0.17010	109	75-125	20
Sodium	10.141	"	10.000	0.11061	100	75-125	20
Potassium	9.7548	"	10.000	0.075073	96.8	75-125	20

Matrix Spike Dup (1211025-MSD2)**Source: E124405-14** Prepared: 11/07/12 Analyzed: 11/14/12**EPA 6010**

Calcium	4.9591	mg/L	5.0000	0.10147	97.2	75-125	20
Magnesium	5.3085	"	5.0000	-0.13189	109	75-125	20
Sodium	10.199	"	10.000	-0.019615	102	75-125	20
Potassium	9.7973	"	10.000	0.60081	92.0	75-125	20

Matrix Spike Dup (1211025-MSD3)**Source: E124405-25** Prepared: 11/07/12 Analyzed: 11/14/12**EPA 6010**

Calcium	5.0320	mg/L	5.0000	-0.011048	101	75-125	20
Magnesium	5.3374	"	5.0000	0.27139	101	75-125	20
Sodium	10.165	"	10.000	0.19031	99.8	75-125	20
Potassium	9.9969	"	10.000	0.73366	92.6	75-125	20

MRL Verification (1211025-PS1)

Prepared: 11/07/12 Analyzed: 11/14/12

EPA 6010

Calcium	0.25556	mg/L	0.25000	102	70-130	MRL-2
Magnesium	0.26097	"	0.25000	104	70-130	MRL-2
Sodium	1.0531	"	1.0000	105	70-130	MRL-2
Potassium	1.0231	"	1.0000	102	70-130	MRL-2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211031 - M M/T Bottle-dry ice blk

Blank (1211031-BLK1) Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N U 10 ug/Filter U

Blank (1211031-BLK2)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N U 10 ug/Filter U

LCS (1211031-BS1)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.94900 0.050 ug/Filter 1.0000 94.9 90-110

LCS (1211031-BS2)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.95100 0.050 ug/Filter 1.0000 95.1 90-110

Matrix Spike (1211031-MS1)

Source: E124405-08 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 1.0070 mg/L 1.0000 -0.048000 106 90-110

Matrix Spike (1211031-MS2)

Source: E124405-16 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.98100 mg/L 1.0000 -0.073000 105 90-110

Matrix Spike (1211031-MS3)

Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.99800 mg/L 1.0000 -0.044000 104 90-110

Matrix Spike Dup (1211031-MSD1)

Source: E124405-08 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 1.0050 mg/L 1.0000 -0.048000 105 90-110 10

Matrix Spike Dup (1211031-MSD2)

Source: E124405-16 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.97700 mg/L 1.0000 -0.073000 105 90-110 10

Matrix Spike Dup (1211031-MSD3)

Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700
D.A.R.T. Id: 12-0562
Project: 13-0013, Yellow Bluff Dust Study - Reported by Mike Wasko

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211031 - M M/T Bottle-dry ice blk

Matrix Spike Dup (1211031-MSD3) Source: E124405-24 Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.98900 mg/L 1.0000 -0.044000 103 90-110 10

MRL Verification (1211031-PS1)

Prepared: 11/08/12 Analyzed: 11/09/12

EPA 350.1

Ammonia as N 0.053000 0.050 ug/Filter 0.050000 106 70-130 MRL-2

Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Blank (1211086-BLK1) Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Filter " U

Chloride U 5.0 " " U

Blank (1211086-BLK2)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Filter " U

Chloride U 5.0 " " U

Blank (1211086-BLK3)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Filter " U

Chloride U 5.0 " " U

Blank (1211086-BLK4)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Filter " U

Chloride U 5.0 " " U

Blank (1211086-BLK5)

Prepared: 11/20/12 Analyzed: 11/27/12

EPA 300.0

Sulfate as SO4 U 5.0 ug/Filter " U

Chloride U 5.0 " " U



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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep**Blank (1211086-BLK6)** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	U	5.0	ug/Filter							U
Chloride	U	5.0	"							U

LCS (1211086-BS1)

Prepared: 11/20/12 Analyzed: 11/26/12

EPA 300.0

Sulfate as SO4	49.800	5.0	ug/Filter	50.000		99.6	90-110			
Chloride	49.750	5.0	"	50.000		99.5	90-110			

Matrix Spike (1211086-MS1)**Source: E124405-10** Prepared: 11/20/12 Analyzed: 11/26/12**EPA 300.0**

Sulfate as SO4	1.1020		mg/L	1.0000	0.14000	96.2	90-110			
Chloride	0.98700		"	1.0000	0.026000	96.1	90-110			

Matrix Spike (1211086-MS2)**Source: E124405-20** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1330		mg/L	1.0000	0.14000	99.3	90-110			
Chloride	1.0100		"	1.0000	0.0090000	100	90-110			

Matrix Spike (1211086-MS3)**Source: E124405-28** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1290		mg/L	1.0000	0.14300	98.6	90-110			
Chloride	1.0140		"	1.0000	0.018000	99.6	90-110			

Matrix Spike Dup (1211086-MSD1)**Source: E124405-10** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1030		mg/L	1.0000	0.14000	96.3	90-110			10
Chloride	0.97900		"	1.0000	0.026000	95.3	90-110			10

Matrix Spike Dup (1211086-MSD2)**Source: E124405-20** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1240		mg/L	1.0000	0.14000	98.4	90-110			10
Chloride	0.99800		"	1.0000	0.0090000	98.9	90-110			10

Matrix Spike Dup (1211086-MSD3)**Source: E124405-28** Prepared: 11/20/12 Analyzed: 11/27/12**EPA 300.0**

Sulfate as SO4	1.1120		mg/L	1.0000	0.14300	96.9	90-110			10
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Classical/Nutrient Analyses (CNA) - Quality Control**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1211086 - C M/T Bottle/Dry Ice Blank Prep

Matrix Spike Dup (1211086-MSD3)	Source: E124405-28	Prepared: 11/20/12	Analyzed: 11/27/12
Chloride	0.99900	mg/L	1.0000 0.018000 98.1 90-110 10

MRL Verification (1211086-PS1) Prepared: 11/20/12 Analyzed: 11/26/12**EPA 300.0**

Sulfate as SO4	4.8500	5.0	ug/Filter	5.0000	97.0	70-130	MRL-2, U
Chloride	4.7500	5.0	"	5.0000	95.0	70-130	MRL-2, U



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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
MRL-2 MRL verification for Non-Potable Water matrix

End of Report